DOCUMENT RESUME

ED 431 111 CE 078 786

AUTHOR	Kemple, James J.; Poglinco, Susan M.; Snipes, Jason C.
TITLE	Career Academies: Building Career Awareness and Work-Based Learning Activities through Employer Partnerships.
INSTITUTION	Manpower Demonstration Research Corp., New York, NY.
PUB DATE	1999-05-00
NOTE	141p.
AVAILABLE FROM	MDRC, 16 East 34 Street, New York, NY 10016; Tel: 212-532-3200; Web site: http://www.mdrc.org
PUB TYPE	Reports - Evaluative (142)
EDRS PRICE	MF01/PC06 Plus Postage.
DESCRIPTORS	*Career Academies; *Career Awareness; Career Education; Case Studies; Education Work Relationship; Educational Practices; Employment Patterns; Enrollment; Grade 12; High Schools; Integrated Curriculum; Learning Activities; Longitudinal Studies; National Surveys; Outcomes of Education; *Partnerships in Education; Program Effectiveness; School Business Relationship; Student Employment; *Vocational Education; *Work Experience Programs
IDENTIFIERS	Impact Studies

ABSTRACT

The impact of career academies on student education and employment outcomes is being examined through a comprehensive longitudinal evaluation of the career academy approach in 10 high schools throughout the United States that were selected because they reflect the school districts where career academies are typically located. Most of the school districts represented in the evaluation are large districts which have higher-than-average percentages of black and Hispanic students; and have higher dropout rates, unemployment rates, and low-income families than national averages. Special attention was paid to the role of employers and work-related components, which are considered cornerstones of the career academy experience. The employer partnerships involved in the study of career academies were found to share four core elements: multiple employers with multiple roles; staff time for partnership coordination; career awareness and development activities; and work-based learning activities. The following items were found to differ from site to site: employer partnership management structure; staffing arrangements; and supports for work-based learning. Among seniors, enrollment in a career academy was associated with equal or higher levels of involvement in career awareness and work-based learning activities. (Nineteen tables and figures are included. Appended are a comparison of research groups and response analyses for the Career Academies Evaluation 12th Grade Survey and four supplementary tables. The bibliography contains 24 references. Also listed are 16 publications on Manpower Development Research Corporation projects.) (MN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 431 111

Career Academies

Building Career Awareness and Work-Based Learning Activities Through Employer Partnerships

James J. Kemple
Susan M. Poglinco
Jason C. Snipes

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

MDRC

May 1999

CE078786

Manpower Demonstration
Research Corporation

BEST COPY AVAILABLE

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

J Gressman

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

BOARD OF DIRECTORS

ROBERT REISCHAUER, *Chairman*
Senior Fellow
Brookings Institution

PAUL H. O'NEILL, *Treasurer*
Chairman and CEO
Alcoa

MARY JO BANE
Professor of Public Policy
John F. Kennedy School of Government
Harvard University

JAMES H. JOHNSON, JR.
E. Maynard Adams Professor of Business, Geography, and Sociology
Director, Urban Investment Strategies Center
University of North Carolina

ANNA KONDRATAS
Senior Associate
Urban Institute

RICHARD J. MURNANE
Professor of Education
Graduate School of Education
Harvard University

RUDOLPH G. PENNER
Senior Fellow
Urban Institute

MARION O. SANDLER
Chairman and CEO
Golden West Financial Corporation and World Savings and Loan Association

ISABEL V. SAWHILL
Senior Fellow
Brookings Institution

ROBERT SOLOW
Institute Professor
Massachusetts Institute of Technology

MITCHELL SVIRIDOFF
Professor Emeritus and Senior Fellow
Community Development Research Center
New School for Social Research

WILLIAM JULIUS WILSON
Malcolm Wiener Professor of Social Policy
John F. Kennedy School of Government
Harvard University

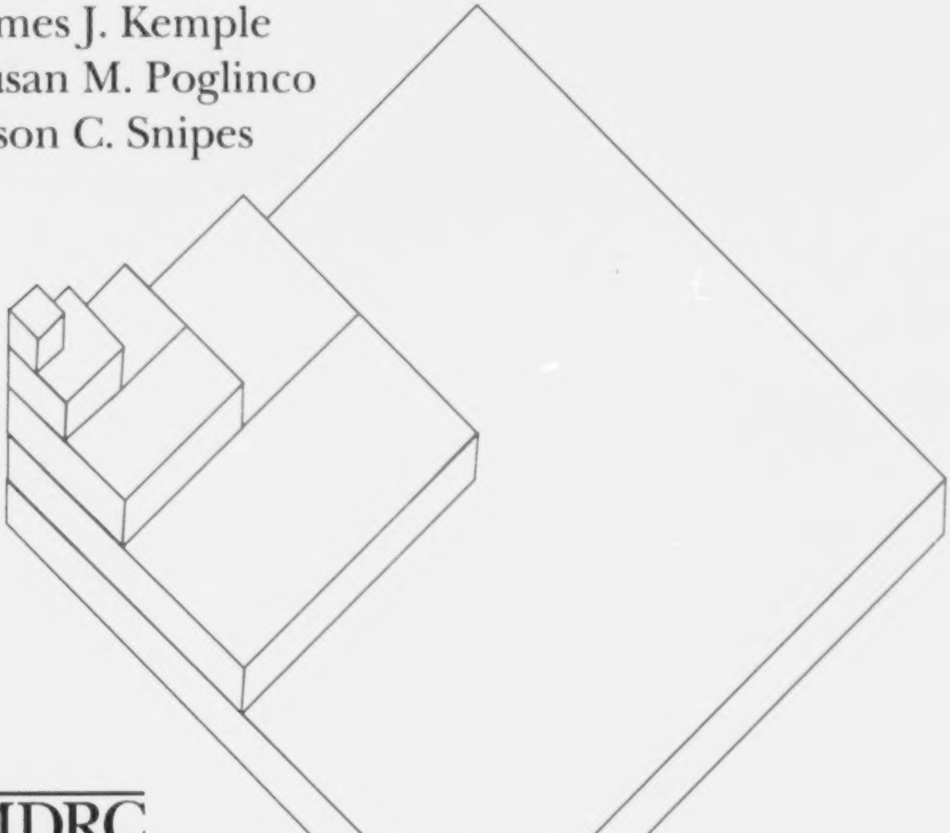
JUDITH M. GUERON
President
Manpower Demonstration Research Corporation

MDRC

Career Academies

Building Career Awareness and Work-Based Learning Activities Through Employer Partnerships

James J. Kemple
Susan M. Poglinco
Jason C. Snipes



MDRC

May 1999

Manpower Demonstration
Research Corporation

The development, production, and distribution of this report were supported by a consortium of funders, including the DeWitt Wallace-Reader's Digest Fund, U.S. Department of Education, U.S. Department of Labor, Ford Foundation, Commonwealth Fund, William T. Grant Foundation, Rockefeller Foundation, Pew Charitable Trusts, George Gund Foundation, Grable Foundation, Richard King Mellon Foundation, Russell Sage Foundation, Alcoa Foundation, Center for Research on the Education of Students Placed At Risk (CRESPAR), American Express Foundation, Westinghouse Foundation, and Bristol-Myers Squibb Foundation.

Dissemination of MDRC publications is also supported by MDRC's Public Policy Outreach funders: the Ford Foundation, Ambrose Monell Foundation, Alcoa Foundation, and James Irvine Foundation.

The findings and conclusions in this report do not necessarily represent the official positions or policies of the funders.

For information about MDRC, see our Web site: www.mdrc.org.
MDRC® is a registered trademark of the Manpower Demonstration Research Corporation.

Copyright © 1999 by the Manpower Demonstration Research Corporation. All rights reserved.

Contents

Tables and Figures iv
Preface v
Acknowledgments vii
Executive Summary ES-1

1 Introduction 1

- I. Rationale and Policy Context for Connecting High School and the World of Work 2
- II. Career Academies as Infrastructure for Connecting School and Work 5
- III. The Career Academies Evaluation 9
- IV. Sites in the Career Academies Evaluation 12
- V. Overview of This Report 15

2 Characteristics of Career Academy Employer Partnerships and Career Awareness and Work-Based Learning Activities 17

- I. Similarities Among the Participating Career Academies 18
- II. Variations in the Career Academies' Employer Partnerships and Work-Related Activities for Students 20
  - A. Characteristics of the Employer Partnerships 20
  - B. Activities and Learning Opportunities for Students That Develop from the Employer Partnerships 30
- III. Lessons from the Field 41

3 Student Participation in Career Awareness and Employment and Work-Based Learning Activities During High School 44

- The Findings in Brief 44
- I. Data Sources and Analysis Issues 45
  - A. The 12th Grade Survey Sample 46
  - B. Analysis Issues 47
- II. Career Academy Impacts on Student Participation in Career Awareness and Work-Based Learning Activities 49
  - A. Impacts on Participation in Career Development and Awareness Activities Outside of School 49
  - B. Impacts on Student Exposure to Career Development and Awareness Experiences in School 53
  - C. Impacts on Work Experience and Participation in Work-Based Learning Activities 56
- III. Student Outcomes and Enrolment in and Attrition from the Academies 69
  - A. The Participation "Funnel" 71
  - B. Participation in Career Awareness and Work-Based Learning Activities and Time Spent in an Academy 73
  - C. Outcome Levels Among Students Receiving the Full Academy Experience 75
  - D. Work-Based Learning Activities and High Quality Work Environments 77
- IV. Conclusions 79

Appendix A: Comparison of Research Groups and Response Analyses for the Career Academies Evaluation 12th Grade Survey 83

Appendix B: Supplementary Tables to Chapter 3 91

References 98
Selected Publications on MDRC Projects 100

Tables and Figures

Table

2.1 Selected Characteristics of Career Academy Employer Partnerships 21

2.2 Selected Characteristics of Career Academy Employer Partnership Liaisons and Coordinators 27

2.3 Career Awareness and Development Activities 31

2.4 Characteristics of Work-Based Learning Activities 36

3.1 Impacts on Participation in Career Awareness and Development Activities Outside of School 51

3.2 Impacts on Participation in Career Awareness and Development Activities in School 55

3.3 Impacts on Employment Outcomes 58

3.4 Impacts on Participation in Work-Based Learning Activities 61

3.5 School-Work Connection Measures by Level of Employer Partnership Structure 67

3.6 School-Work Connection Measures of Full Academy Group by Career Academy Enrollment Status 74

3.7 School-Work Connection Effects for Those Employed and Enrolled in Academy at End of 12th Grade 78

A.1 Background Characteristics of Students in the 12th Grade Survey Sample by Academy and Non-Academy Groups 86

B.1 Background Characteristics of Program Students by Duration of Enrollment in a Career Academy 92

B.2 Items from the 12th Grade Survey and Student School Experience Questionnaire Used to Create Career Awareness and Work-Based Learning Participation Measures 94

B.3 Impacts on Participation in School-to-Work Programs 96

B.4 School-Work Connection Measures of Control Group by Participation in School-to-Work Programs 97

Figure

ES-1 Names, Locations, and Affiliations of Participating Career Academies ES-2

ES-2 Participation in Career Awareness and Work-Based Learning Activities of Career Academy Seniors ES-9

ES-3 Participation in Career Awareness and Work-Based Learning Activities of Career Academy Seniors by Degree of Structure of Employer Partnership ES-11

ES-4 Career Academy Impacts on Participation in Career Awareness and Work-Based Learning Activities for Career Academy Applicant Sample by Research Group ES-13

1.1 Simplified Model of the Career Academy Approach 6

1.2 Structural and Learning Opportunity Dimensions of the Career Academies Aimed at Connecting School and Work 8

1.3 Names, Locations, and Affiliations of Participating Career Academies 13

3.1 Academy Group Participation Funnel: 100 Typical Students 72

Preface

Career Academies are one of the fastest-growing high school reforms in the United States. Their popularity can be attributed, in large part, to their combining key elements of the high school restructuring and school-to-career movements. As a high school restructuring reform, Career Academies create more personalized learning environments through a school-within-a-school structure organized around a career theme. As a school-to-career initiative, Career Academies combine classroom-based and work-based learning to help students acquire the skills needed to pursue post-secondary education, employment, or a combination of the two. A major question confronting Career Academies and related reforms is: Do they work? Do Career Academies improve student education and employment outcomes, and do they have a long-term payoff in terms of helping students enroll in and complete college and become successful in the labor market?

To answer these and related questions, the Manpower Demonstration Research Corporation (MDRC) is conducting a comprehensive longitudinal evaluation of the Career Academy approach in 10 high schools throughout the country. This evaluation is distinctive for three major reasons. First, it is one of the few evaluations of a school reform initiative that uses a random assignment research design in which the experiences of Career Academy students are being compared with those of a randomly selected control group. This design is widely considered to be the most reliable way to measure the effectiveness of interventions like Career Academies. Second, this is one of the few education evaluations that will follow the students in the research sample through high school and for up to four years after they are scheduled to graduate. Third, the study is measuring effectiveness across a broad set of outcomes including measures of school performance and engagement, academic achievement, employment and earnings, post-secondary enrollment and completion, and risk-taking behaviors.

This is the third in a series of reports being produced from the Career Academies Evaluation. The first report provided basic descriptions of the participating Career Academies. The second focused on the experiences of students and teachers in the Career Academies and contrasted these with the experiences of non-Academy students and teachers in the same high schools. The current report centers on the role of employers and the work-related components of the Career Academy experience. Employer involvement and work-based learning are considered cornerstones of school-to-career initiatives like Career Academies. This report examines the structure, nature, and content of these employer partnerships and the impact of the Career Academies on students' participation in work-related activities during high school.

From an implementation perspective, the overall story in this report is encouraging. All of the Career Academies in the study were able to establish partnerships with a group of local employers and to create a range of career awareness and work-based learning activities for their students. The nature and depth of these relationships varied, reflecting different local contexts, management structures, staffing arrangements, and the availability of resources to nurture these relationships. While the sites were successful in creating work-related activities for Career Academy students, they struggled to integrate classroom-based and work-based learning.

The Career Academies positively affected student participation in career awareness and work-based learning, yet the results challenge Academies and other school-to-career initiatives to develop strategies for enhancing both the quantity and quality of these activities. Career Academy 12th graders participated in work-related activities at higher rates than what has been found in other school-to-career initiatives. The Career Academy students in the research sample were more likely than their non-Academy counterparts to participate in a variety of career development activities. They were also more likely to be employed during high school and to work in jobs that were connected to school and had a high degree of work-based learning content. While the Academies produced an increase in student participation in a broad array of career awareness and work-based learning activities, a substantial proportion of Academy students were not exposed to some of these key dimensions of the Academy experience, in particular, high-quality work-based learning experiences that were connected to school. The highest participation rates were found among Academies with more highly structured employer partnerships and the capacity to support full-time, non-teaching employer coordinators.

The next report from the evaluation, due out later in 1999, will focus on the impact Career Academies have on education outcomes throughout high school. Future reports will center on the impact Career Academies have on post-secondary school enrollment and completion, labor market success, youth development measures, and reductions in risk-taking behaviors.

Judith M. Gueron
President

Acknowledgments

Above all, the authors of this report are indebted to the teachers, administrators, students, and employer partners at all the Career Academy programs. Their willingness to share their time, classrooms, and experiences and perceptions with the researchers was essential to our understanding how employer partnerships develop and mature in Career Academies. We also appreciate Academy staffs' comments on an earlier version of this report. We would like to recognize the special contributions of John Burdick, Lupe Diaz, James Dickens, Anne Fields, Kathy Floyd, Jan Kehoe, Bob Ocano, Dan Sanchez, Nancy Sochat, and Lisa Zuegel for their generosity and assistance while out in the field at their respective Academy programs.

The Career Academies Evaluation would not be possible without the vision and support of the funding organizations, which are listed at the front of the report. This study is also the product of a collaboration among MDRC and the participating Career Academies, host high schools, and school districts. The contributions of staff from each of the participating school districts have been invaluable in helping with data collection.

The research conducted for this report also benefited from the insights and guidance of several key advisors to the evaluation including: James P. Connell, Charles Dayton, Richard Murnane, Marilyn Raby, and David Stern. The following people also provided ongoing support and guidance to the study: Carole Lacampagne, Nevzer Stacey, and Irene Harwarth from the U.S. Department of Education's Office of Educational Research and Improvement; Patricia McNeil and Chris Kulick from the U.S. Department of Education's Office of Vocational and Adult Education; Stephanie Powers from the National School-to-Work Office; Raymond Uhalde, David Lah, and Marlin Ferrell from the U.S. Department of Labor; Susan Tidyman from the State of California Department of Education; Glenn Thomas from the Florida Department of Education; John Ferrandino and Bonnie Silver from the National Academy Foundation; and Grace Samon from the National Career Academy Coalition.

At MDRC, Marla Sherman and David Navarro, with help from staff in MDRC's data room, coordinated the survey preparation and data processing. Mary Andes, Susan Kagehiro, and Marilyn Price served as liaisons between MDRC and the sites, and provided important insights into programmatic changes at the site level in terms of the employer partnerships. Special thanks to Anne Van Aman, a consultant to MDRC, for administering the 12th Grade Survey. Susanna Myers provided research assistance and coordinated the production of the report. Bob Granger, Fred Doolittle, Rob Ivry, and JoAnn Rock reviewed drafts of the report. Nina Gunzenhauser edited the report, and Stephanie Cowell and Patt Pontevolpe prepared the manuscript for publication.

The Authors

Executive Summary

This is the third in a series of reports from an ongoing evaluation of the Career Academy approach, a widely established high school reform initiative aimed at improving students' performance in high school and providing them with clearer pathways to post-secondary education and careers. The evaluation is being conducted by the Manpower Demonstration Research Corporation (MDRC) with support from the U.S. Departments of Education and Labor and 14 private foundations. It focuses on 10 Career Academies across the country.

Career Academies share three basic features. First, the programs are typically organized as schools-within-schools in an effort to create more supportive teaching and learning communities. Second, they have a career theme and attempt to integrate a college preparatory academic curriculum with more applied, occupation-related courses. Third, they establish partnerships with local employers as a means of increasing students' awareness of career options in a given field and providing them with learning opportunities in a work setting.

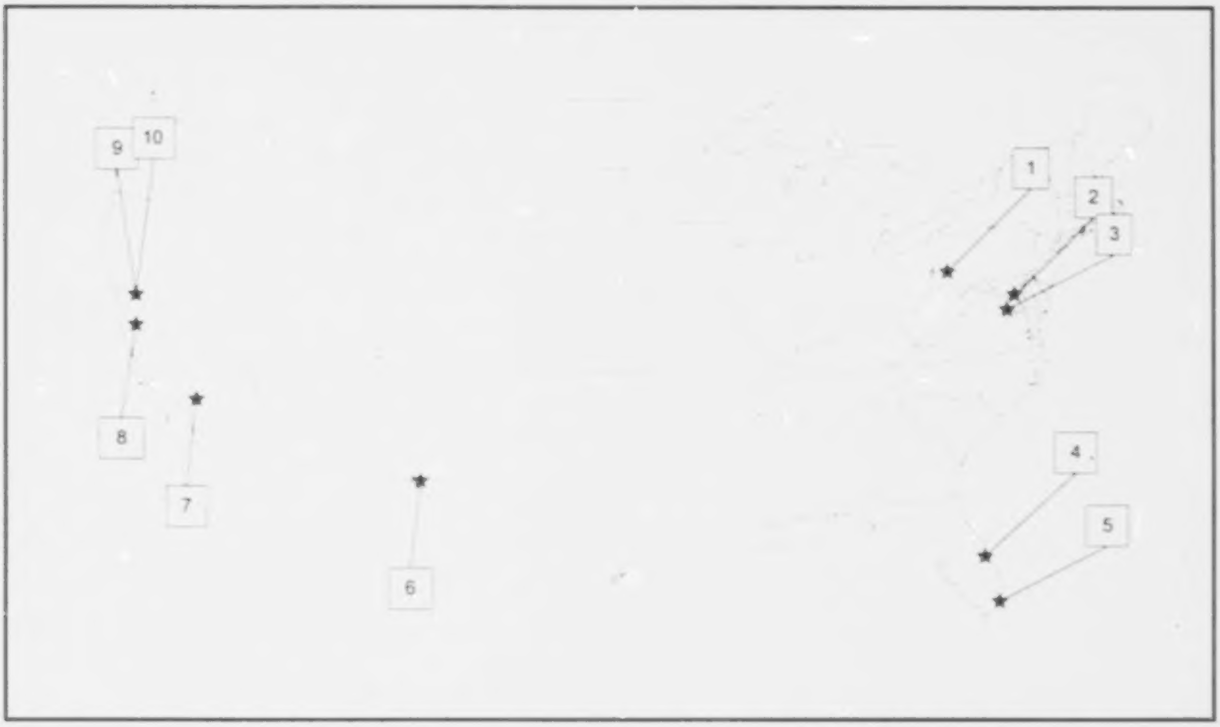
This report focuses on the third of these features, the employer partnerships and how they evolved in each of the 10 participating Career Academies. It also assesses the extent to which Career Academies increased student participation in various career awareness and work-based learning activities that were sponsored by the employer partners. The findings presented in this report provide insights into the opportunities and challenges that high schools and local employers face as they seek to build constructive partnerships. The report suggests several lessons that can guide the development of employer partnerships and work-related learning opportunities for students in the context of Career Academies or other school-to-work programs.

Figure ES-1 shows the names, locations, and affiliations of the 10 Career Academies participating in the evaluation. Most of the school districts represented in the evaluation are large and enroll high percentages of black and Hispanic students compared with national averages. The participating school districts also have higher dropout rates, unemployment rates, and percentages of low-income families than national averages. Most Career Academies across the country are located in such districts, and MDRC purposely sought such sites for the Career Academies Evaluation. Using this group of sites will ensure that the study yields findings for a broad mix of students, including those who, in the experience of schools in the district, may be at risk of doing poorly in school.

The participating Career Academies offer a range of occupational themes. Three are in the business and finance fields, three focus on high-technology areas such as electronics and aerospace technology, and there is one each in the fields of health occupations, public service, travel and tourism, and video technology. The participating programs were drawn from most of the major established networks of Career Academies across the country, with four from the California Partnership Academy network, two from the National Academy Foundation network, one from the Florida network of Academies for Career Development and Applied Technology, and one from the network of Academy programs created by the District of Columbia Public Schools. Two of the participating Academies were created independently through local high school or district initiatives.

The findings presented in this report are based on information collected during several field research visits to each of the 10 sites participating in the study. The report also relies on a survey that was administered to about 1,600 Academy and non-Academy students from the sites

Figure ES-1
Names, Locations, and Affiliations of Participating Career Academies



	Academy and High School	School District and City	Academy Network and School Year Academy Started
1.	Business and Finance Academy George Westinghouse High School	Pittsburgh Public Schools Pittsburgh, Pennsylvania	Independent 1984-85
2.	Academy of Finance Lake Clifton/Eastern High School	Baltimore City Public Schools Baltimore, Maryland	National Academy Foundation 1987-88
3.	Public Service Academy Anacostia High School	District of Columbia Public Schools Washington, D.C.	D.C. Public Schools Academy Network 1989-90
4.	Academy for Aerospace Technology Cocoa High School	Brevard County Public Schools Cocoa, Florida	Florida's Academies for Career Development and Applied Technology 1993-94
5.	Academy of Travel and Tourism Miami Beach Senior High School	Dade County Public Schools Miami Beach, Florida	National Academy Foundation 1991-92
6.	Health Professions Academy Socorro High School	Socorro Independent School District Socorro, Texas	Independent 1991-92
7.	Global Business Academy Valley High School	Santa Ana Unified School District Santa Ana, California	California Partnership Academy 1991-92
8.	Watsonville Video Academy Watsonville High School	Pajaro Valley Unified School District Watsonville, California	California Partnership Academy 1991-92
9.	Electronics Academy (SC) Silver Creek High School	East Side Union High School District San Jose, California	California Partnership Academy 1984-85
10.	Electronics Academy (I) Independence High School	East Side Union High School District San Jose, California	California Partnership Academy 1984-85

at the end of their 12th-grade year. The survey asked students a variety of questions about their work experiences during high school and about their exposure to career awareness and development activities both in and outside of school.

The Basic Features of Career Academy Employer Partnerships

Previous and ongoing research focusing on school-to-work initiatives has revealed many challenges to establishing partnerships with local employers and developing meaningful work-related learning experiences for students. The 10 Career Academies participating in this evaluation were chosen strategically with the goal of providing a credible test of the Career Academy approach as it had been defined in practice and in previous research. They were also selected to reflect a range of local contexts in which Career Academies have been implemented and sustained. The field research conducted for the study produced rich information documenting various dimensions of their employer partnerships and the intensive effort that was required to implement and sustain them. The following is an overview of the core elements they had in common during the period under study (generally, the 1994-95 school year through the 1997-98 school year).

- **Multiple employers with multiple roles.** Each of the participating Career Academies succeeded in engaging a group of local employers in an ongoing effort to support the Academy programs and to sponsor a range of career awareness and work-based learning activities for students. These relationships predate the study, which began in 1993. The employer partnerships in each of the sites involved a minimum of three employers. The employers supported the Academies by contributing resources, most intensively in the form of the time their employees committed to participating in Academy-related activities as guest speakers at career awareness workshops, special event coordinators, mentors for students, or internship supervisors. Employer partners also provided financial support, equipment, advice on curriculum, information about job opportunities and skill requirements in their fields, and even financial aid for students going to college.

- **Staff time for partnership coordination.** Each of the sites relied on a person or group of people who served as liaisons between the employers and the Academies and as the coordinators for the various employer-sponsored activities. The role of the coordinator was pivotal in facilitating communication between the employer partners and the Academy teachers and administrators. The coordinator in each site also played a central role in developing career awareness and work-based learning activities for students and facilitating student participation in such activities.

- **Career awareness and development activities.** Each of the Career Academies established a variety of employer-sponsored activities that were designed to enhance students' understanding of the world of work in general and their awareness of occupations within the program's broad career theme. Some of these activities occurred outside of school; these included career-related field trips, job shadowing (in which students had the opportunity to accompany an adult to his or her job for a day), and contact with an adult who acted as a mentor or provided students with personal and professional guidance. Other activities typically occurred in school; these included researching and learning about jobs and their requirements in a class, discussing connections between school and work with other students or adults, receiving instruction or counseling about how to find a job or act on the job, and events at which adults came to school to talk about their jobs.

- **Work-based learning activities.** Each of the Career Academies developed a formal work-based learning program for their students. A key objective of work-based learning is to integrate different approaches to learning by drawing on the classroom, the workplace, and the occupational theme of the Academy. In each of the sites, the employer liaison or coordinator worked to identify or develop job opportunities for Academy students with one of the employer partners. These positions were intended to provide opportunities for students to learn about their assigned job, the range of jobs and career opportunities across the company or organization, and the world of work in general.

Variation Among Career Academies

The participating Career Academies used a wide range of strategies for supporting their employer partnerships and for building on the partnerships to develop new learning opportunities for their students. The variation among the Academies reflects the adaptation of the core dimensions of the Academy approach to local needs, capacities, and circumstances. For some program dimensions, the variation among sites reflects relative strengths or limitations in the sites' capacities to fully engage their employer partners and to develop high quality work-related activities for students. The field research for the Career Academies Evaluation highlighted particularly vivid differences among the sites in three key areas: the partnership management structure, staffing arrangements, and supports for work-based learning. Analysis of these differences provides insights into strategies that may enhance the stability and cohesiveness of the employer partnerships and the quality of work-related activities for students.

Employer partnership management structure. Four Career Academies in the study developed what may be characterized as highly structured approaches to sustaining employer partnerships. Each of the employer partners in these sites was required to provide a financial or in-kind support for the Academies. Financial commitments from the employer partners, as well as in-kind contributions of staff time and other resources, indicated a concrete investment in the success of the program. These sites established formal advisory boards that met regularly to focus and coordinate employer support for the programs. In general, the employer advisory boards provided a forum for employer partners, teachers, and administrators to develop a shared vision for the Career Academies and to discuss issues of mutual concern. Regular meetings provided opportunities for employers and educators to learn from each other and gain new perspectives on the different roles each played in the programs.

The six Career Academies with less-structured employer partnerships either did not have formal employer advisory boards or their employer advisory boards met less frequently. Involvement with employer partners at some of these sites tended to be less well coordinated and less focused on the Academy's broad mission and operational issues. At some sites, the level of employer involvement fluctuated from year to year, and in one case the employer partnership was eventually reconstituted and then finally disbanded.

Interestingly, two of the programs with less-structured partnerships developed alternative strategies for sustaining or enhancing employer involvement. The partnership in one of these sites included only three principal employers, who provided a large number of work-based learning placements and contributed resources such as equipment and materials. The relatively small number of employers made coordination of their involvement more manageable for the Academy teaching staff and reduced the need for a highly structured approach to managing the partnership. A second site, recognizing the need for more stable and intensive employer involvement, eventually engaged a single large employer who provided financial contributions and made a commitment to providing work-based learning placements and career awareness activities for students. This move appears to have established a solid foundation for expanding the partnership and its role in the Academy.

Staffing arrangements. The sites used different staffing arrangements to coordinate the relationship between the programs and the employer partners and to develop the various employer-sponsored activities for students. Five sites were able to support a full-time, non-teaching coordinator to be the liaison between the Academy and the employer partners and to manage the employer-sponsored activities. With no teaching responsibilities, the coordinator had a flexible schedule and could accommodate meetings with employer advisory group members, Academy budget meetings with employer partners, and fund-raising activities. These non-teaching coordinators were also able to attend to other administrative work in the field to ensure that the career awareness and development opportunities and work-based learning activities ran smoothly over the course of the year. The coordinators were responsible for matching students with mentors and internships, providing orientations for mentors and work-based learning supervisors, monitoring student work experiences throughout the summer months, recruiting new employer partners, and maintaining relationships with existing partners. Interestingly, four of the five sites that were able to support a full-time non-teaching coordinator also relied on the highly structured approach to managing the partnership discussed in the previous section. In fact, the employer partners provided much of the financial support (usually supplemented by district support) for the coordinator's salary and benefits.

The other five sites relied on Career Academy teachers to serve as the primary liaisons with the employer partners and primary coordinators for employer-sponsored activities. At each of these sites, the Academy lead teacher had classroom responsibilities as well as administrative responsibilities for other Academy activities. To provide the lead teachers with some additional time to fulfill these roles, four of the sites provided additional funding to reduce their teaching load (usually from five classes to three or four classes). Although the coordinators at these sites were extremely dedicated, the added classroom and administrative responsibilities sometimes prevented them from engaging the employer partners on multiple levels and from developing a wide range of high-quality career awareness and work-based learning activities.

Supports for work-based learning. The sites differed in the types and degree of preparation they provided students and employers prior to and during their work-based learning internships. Nine of the sites provided some type of orientation for both the students and their employer supervisors prior to the start of the work-based learning activities. Six of the sites provided a more formal set of supports for their work-based learning programs. In general, these included initial orientations for students and their employer supervisors followed by ongoing monitoring of student participation. These activities were organized by the partnership coordinator and were designed to focus students and their supervisors on creating learning opportunities and making the work experience more than a job for students. In three of these sites, the employer partners provided an additional orientation for the work-site supervisors. Employers were encouraged to expose students to as many aspects of their industry as possible, while students were instructed on general expectations in the workplace, including dress codes, decision-making and accountability norms, and "unwritten" rules for advancement.

The remaining four sites focused on developing job placements for their students but did not provide as much formal preparation for the employers or students. Employers and students were generally left on their own to explore learning opportunities and strategies for exposing students to a broad range of experiences on the job. This approach appeared to result in more variation in the learning value that students and employers attached to these activities.

Finally, all of the sites struggled to build concrete connections between classroom- and work-based learning. While some students reported using math, reading, or computer skills in their work experiences, these applications were rarely an outgrowth of academic classes students were taking in school. Several of the Academies developed school-based projects or "virtual learning" activities that presented students with work-related problems to solve, but these were often not directly related to students' actual work experiences. In some Academies, students wrote papers or engaged in classroom discussion reflecting on their work experiences and the relevance of their experiences to their career goals. Building concrete connections between school and work-based teaching and learning is a dimension of the Career Academy approach (as well as other school-to-work approaches) that needs further attention from both educators and employers.

In summary, four of the sites incorporated all three of the most productive variation of the features that have been discussed here: a highly structured approach to managing their employer partnerships, a non-teaching partnership coordinator, and formal orientations and supports for their work-based learning activities. These sites all benefited from generous financial and in-kind contributions from employer partners, employer advisory boards that channeled employer roles and contributions, and employers involved with the Academies on a broad range of levels. They also benefited from the full-time commitment of a staff member who coordinated the partnerships and the career awareness and work-based learning activities. A fifth site, while it did not have a highly structured employer partnership, was able to support a non-teaching coordinator and incorporate the more formal approach to supporting its work-based learning activities. As will be seen in the discussion that follows, Career Academy students in these five sites were more likely to participate in a wide range of career awareness and work-based learning activities (and, in general, to participate more intensively) than their counterparts in the other sites.

Participation in Career Awareness and Work-Based Learning Activities Among Career Academy 12th Graders

- **Career Academy 12th-grade students in this evaluation were engaged in career awareness and work-based learning activities at levels that were equivalent to or higher than participation rates found in other school-to-work initiatives.**

Even before the recent efforts to build more intensive school-to-work initiatives (particularly those stemming from the School-to-Work Opportunities Act of 1994), many schools and school districts offered a range of career awareness and development activities for students. Over the past four years, a burst of new school-to-work initiatives has taken place around the country. Studies of these initiatives indicate that the new school-to-work partnerships have focused most intensively on creating or enhancing career awareness and development activities such as career counseling, employer presentations, work site field trips, and job shadowing. Most notably, the National School-to-Work Implementation Study focused on eight states that had established a wide array of local employer partnerships using funding allocated from the School-to-Work Opportunities Act of 1994. Early findings from these intensive-implementation states indicate that very few high school seniors were participating regularly in career awareness and work-based learning activities. According to a survey administered to seniors in these eight states, 20 percent reported attending three or more work site field trips during high school, 7 percent reported participation in three or more job shadowing activities, and 16 percent reported participating in what could be described as work-based learning activities.[1]

Direct comparison between the Career Academies Evaluation and the National School-to-Work Implementation Study should be interpreted with caution because of the differences in the program approaches they cover and the research designs they use. Nonetheless, the two studies surveyed similar groups of students and used similar measures to capture participation in career awareness and work-based learning activities. These similarities suggest that early findings from the National School-to-Work Implementation Study can serve as a useful context for interpreting findings from the Career Academies Evaluation. In short, it appears that seniors in the Career Academies study participated in career awareness and work-based learning activities at rates similar to or higher than those found among seniors in the national study. For example, about half the Career Academy seniors participated intensively in career awareness and development activities, about 45 percent reported having a job that was connected to school, and about 25 percent reported having a job that included a high level of work-based learning content. The findings emerging from the Career Academies Evaluation suggest that the programs have been successful in increasing student participation in these activities. It is also sobering, however, that a significant portion of the Academy seniors (between half and three-fourths) were not exposed to key aspects of the Career Academy experience. These findings are explored in more detail in the next section.

- **Nearly all the students who remained in a Career Academy throughout high school participated in some type of career awareness and develop-**

---

[1] Alan M. Hershey, Paula Hudis, Marsha Silverberg, and Joshua Haimson, *Partners in Progress: Early Steps in Creating School-to-Work Systems* (Princeton, N.J.: Mathematica Policy Research, Inc., 1997), xxi, xxv.

ment activity. Over half these students participated intensively in these activities.

Virtually all (99 percent) of the students who were enrolled in an Academy at the end of 12th grade reported that they had participated in one or more career development and awareness activities during high school. Some of these activities occurred outside of school. These included career-related field trips, job shadowing activities (in which students had the opportunity to observe at work for a day), and contact with an adult who acted as a mentor or provided students with personal and professional guidance. Other career awareness and development activities took place in school. They included learning about jobs and their requirements in a class, discussing careers and connections between school and work with other students or adults, receiving instruction or counseling about how to find a job or act on the job, and attending events in which adults came to school to talk about jobs or careers.

Figure ES-2 presents a summary of selected findings from the survey of Career Academy 12th-grade students regarding their participation in career awareness and work-based learning activities during high school. The first bar in the figure shows that 54 percent of the 12th-grade students enrolled in an Academy can be said to have participated intensively in career awareness activities that typically took place outside of school, and 52 percent reported intensive exposure to school-based career awareness and development activities. Intensive participation was defined as participating in two or more activities outside of school or participating in school-based activities at least once per month.

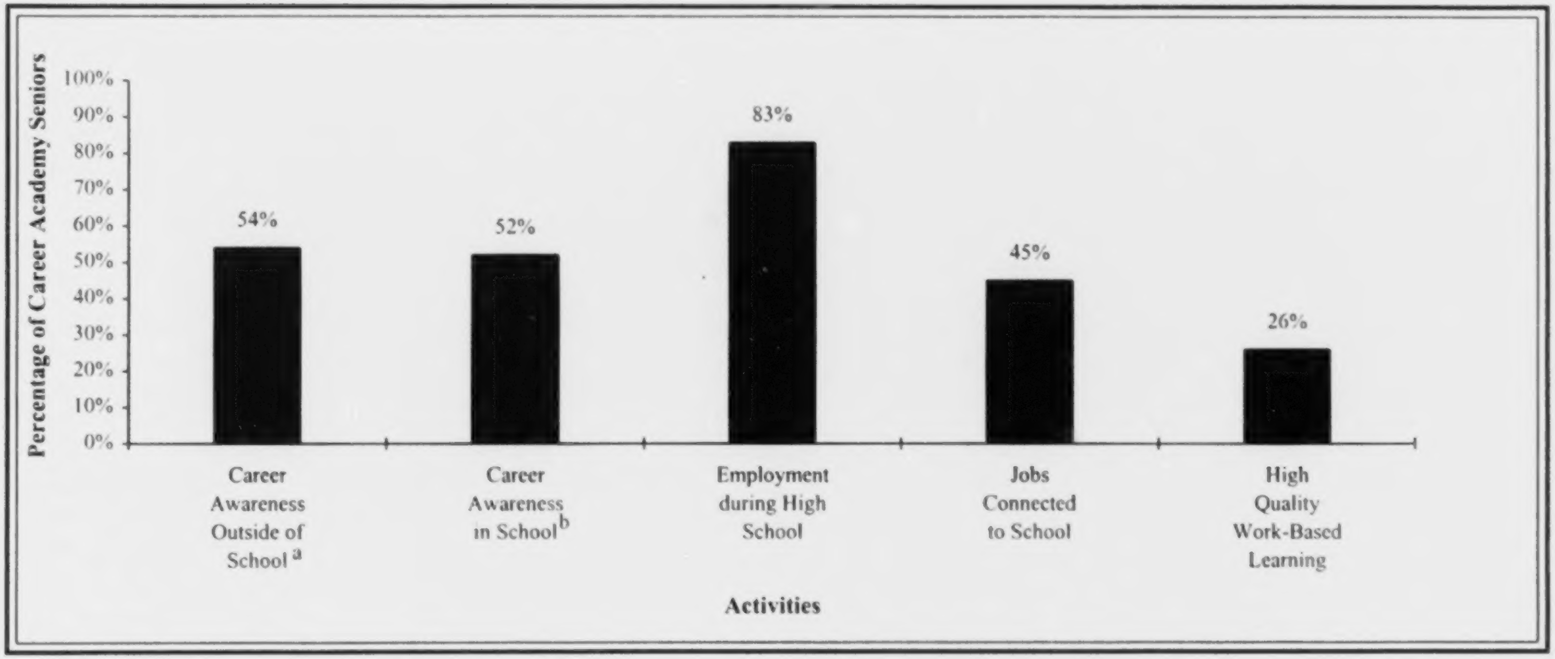
- **The vast majority of the students who remained in a Career Academy through the 12th grade worked at some point during high school. Just under half the Career Academy seniors worked in a job that was connected with school, and about one-quarter can be said to have held a job with a high level of work-based learning content.**

Figure ES-2 shows that 83 percent of the students who were enrolled in a Career Academy at the end of their 12th-grade year were employed at some point during high school. Approximately 45 percent reported working in a job that was connected to school, and 26 percent can be said to have held a *high quality* work-based learning job. Jobs that were connected to school included jobs that were obtained through a school program or teacher, jobs for which students received school credit, and jobs in which staff from a school-based program monitored the student's work either directly or through contact with the employer. These jobs were considered to be "work-based learning jobs." Jobs with a "high degree of work-based learning content" included jobs in which students reported using reading, writing, or computer skills, receiving advice on general and specific work expectations, having the opportunity to learn new things, and being engaged. Significantly, students who held jobs that were connected to school were much more likely to report having jobs with a high degree of work-based learning content.

- **Students in Career Academies with highly structured employer partnerships or support for non-teaching employer coordinators reported higher levels of participation in career awareness and work-based learning activities than those in Career Academies that had less-structured partnerships or coordinators with teaching responsibilities.**

Figure ES-2

Participation in Career Awareness and Work-Based Learning Activities of Career Academy Seniors



SOURCE: MDRC calculations from the Career Academies Evaluation 12th Grade Survey.

NOTES: [a]This denotes intensive participation as defined by participation in two or more career awareness and development activities.

[b]This denotes a high level of participation as defined by participation in at least three career awareness activities per month.

Figure ES-3 uses the same measures of student participation in career awareness and work-based learning activities among Career Academy seniors as Figure ES-2. The bars in Figure ES-3 show the differences in participation rates between students from the five Career Academies with highly structured employer partnerships and/or non-teaching employer coordinators and students from the five Academies with less structured partnerships.

In general, students from the five sites that had either highly structured employer partnerships or were able to support a non-teaching employer coordinator participated at significantly higher rates in all dimensions of career awareness and work-based learning activities than students in the other five study sites. For example, 66 percent of the 12th-grade students from the highly structured Academy sites reported intensive involvement in career awareness and development activities that occurred outside of school, and 59 percent reported intensive participation in career awareness and development activities in school. In contrast, 12th-grade students from the less-structured Academy sites reported participation rates of 43 percent and 39 percent, respectively, in these types of activities.

Having highly structured employer partnerships or having a non-teaching person responsible for coordinating the employer partnerships was also strongly related to higher rates of student participation in work-based learning programs. In particular, 59 percent of the 12th-grade students from the Academy sites with these characteristics had jobs that were connected to school, compared with 39 percent of the students in the other sites. Interestingly, the level of structure of their employer partnerships and the manner in which they organized the coordination of the employer partnerships was not as strongly related to the percentage of Academy students who had jobs with a "high" level of work-based learning content. Thirty percent of the students from the highly structured sites had jobs with a "high" level of work-based learning content, compared with 22 percent of the students from the less-structured sites.

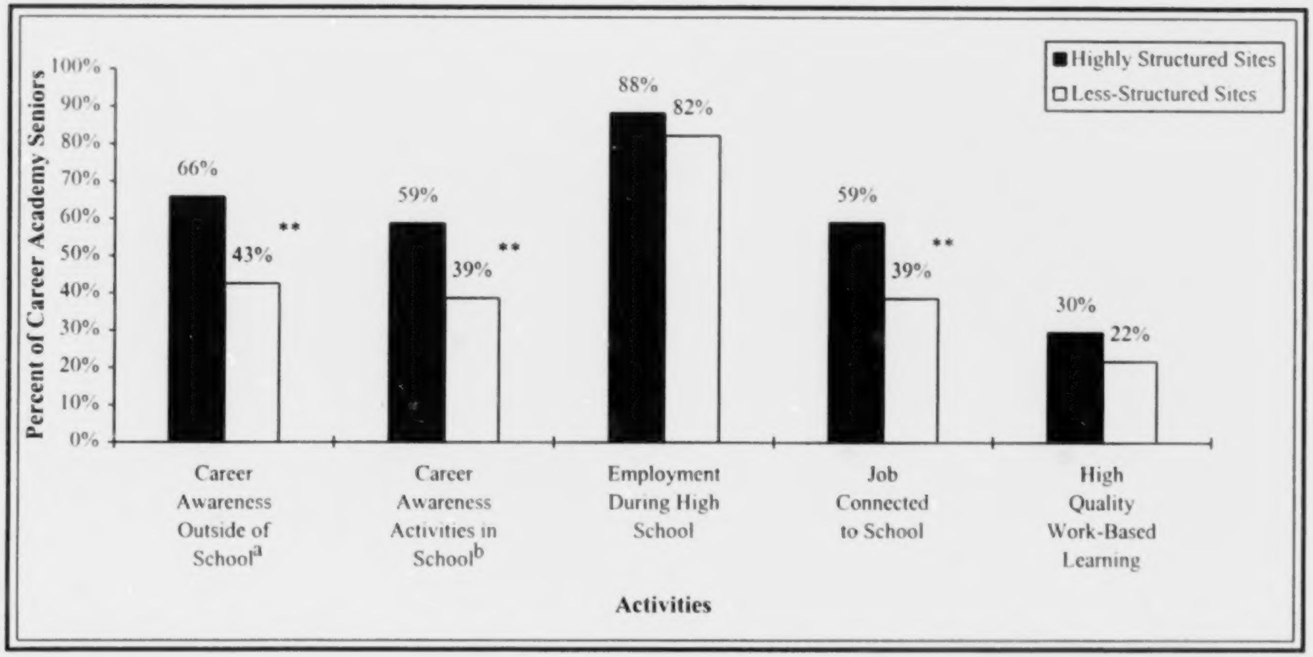
Career Academy Impacts on Student Participation in Career Awareness and Work-Based Learning Activities

The Career Academies Evaluation provides a unique opportunity to compare the experiences of students who applied for and were selected to attend a Career Academy (referred to as the Academy group) with those of students who also applied but were not selected to attend a Career Academy (referred to as the non-Academy group). To ensure that the two groups were comparable, applicants eligible for each of the participating Academies were selected at random to enroll in the programs. (This selection was possible because the programs had more qualified applicants than they were able to serve.) Because the two groups of students were determined randomly, they started out, on average, with the same set of background characteristics.

Both groups of students completed a survey during their 12th-grade year and were asked the same questions about a broad range of school- and work-related experiences during high school. Because the students in the Academy and non-Academy groups entered the study with a similar set of background characteristics on average, any differences in school- and work-related experiences that emerged later can be attributed to differences between the Career Academies and the regular high school environments in which the non-Academy students were enrolled.

Figure ES-3

Participation in Career Awareness and Work-Based Learning Activities of Career Academy Seniors by Degree of Structure of Employer Partnership



SOURCE: MDRC calculations from the Career Academies Evaluation 12th Grade Survey.

NOTES: Percentages are regression adjusted to control for background characteristics of sample members. A two-tailed t-test was applied to differences between highly structured and less-structured sites. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a] This denotes intensive participation as defined by participation in two or more career awareness and development activities.

[b] This denotes a high level of participation as defined by participation in at least three career awareness activities per month.

The findings discussed in this section and summarized in Figure ES-4 are based on comparisons between the experiences of students in the Academy group and those of students in the non-Academy group. As will be discussed in detail, students in the Academy group had varying degrees of exposure to the Career Academy programs; some remained in the programs throughout high school, others enrolled for one or more semesters and then left, and some never enrolled at all. Hence, unlike Figures ES-2 and ES-3, Figure ES-4 presents participation rates among all students who applied and were eligible for admission to an Academy, including those who may not have been enrolled in the Academy throughout high school. Because of the random selection process, the comparison between Academy and non-Academy groups provides a reliable estimate of the extent to which the Career Academies add to the availability and rates of participation in these career awareness and work-based learning activities.

The findings from this comparison indicate that while some non-Academy students also participated in career awareness and work-based learning activities, the students who had an opportunity to attend an Academy participated more frequently and more intensively than non-Academy students. Students in the study's Academy group were also more likely to work, and they were more likely to work in jobs that were connected to school. While the findings discussed in this section are encouraging, they are also sobering in that over half the students selected to enroll in an Academy never participated intensively in career awareness or work-based learning activities.

- **While career awareness and work-based learning activities were also available outside the Academies, students in the study's Academy group participated more frequently and more intensively than their peers who did not have the opportunity to attend an Academy.**

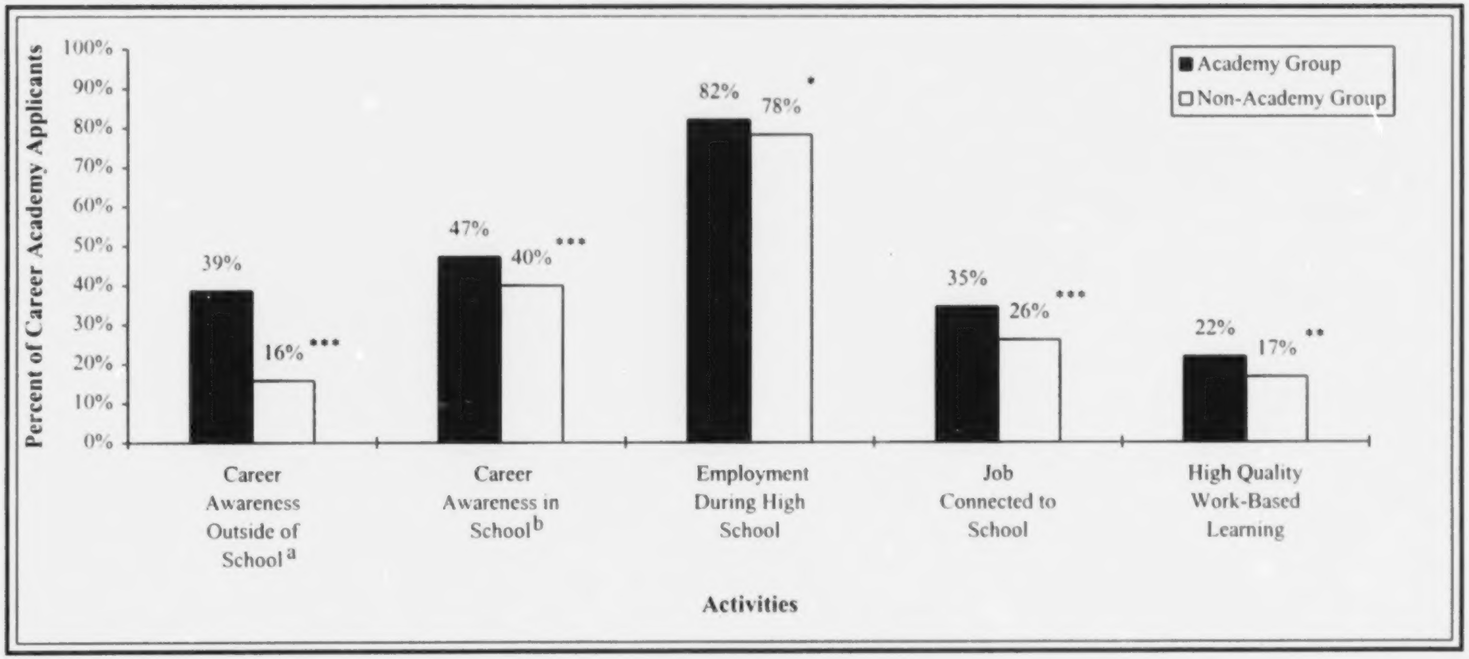
Figure ES-4 shows the rates of participation in career awareness and work-based learning activities among students in the study's Academy and non-Academy groups. As shown in the first set of bars, 16 percent of the students in the non-Academy group participated intensively in career awareness and development activities that typically occurred outside of school. As is shown in the second set of bars, 40 percent of the students in the non-Academy group participated in career awareness and development activities that took place in school. These findings indicate that career awareness and development activities are generally available in the regular school environments and that even without access to a Career Academy, many of these students took advantage of these opportunities.

Overall, however, students in the study's Academy group were significantly more likely to participate in career awareness and development activities both in and outside of school. Specifically, 39 percent of the students who were selected to enroll in a Career Academy were exposed intensively to the career awareness and development activities outside of school (more than double the participation rate among students in the non-Academy group. Also, 47 percent of the students in the Academy group participated intensively in school-based career awareness and development activities.

- **Students in the Academy group were more likely than their non-Academy group counterparts to be employed during high school. They were also more likely to be employed in jobs that were connected to school and that incorporated "high" levels of work-based learning content.**

Figure ES-4

Career Academy Impacts on Participation in Career Awareness and Work-Based Learning Activities for Career Academy Applicant Sample by Research Group



SOURCE: MDRC calculations from the Career Academies Evaluation 12th Grade Survey.

NOTES: Percentages are regression adjusted to control for background characteristics of sample members. A two-tailed t-test was applied to differences between the Academy and non-Academy groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a] This denotes intensive participation as defined by participation in two or more career awareness and development activities.

[b] This denotes a high level of participation as defined by participation in at least three career awareness activities per month.

Overall, 82 percent of the students who had an opportunity to attend an Academy reported being employed during high school, compared with 78 percent of the non-Academy group. Substantially larger differences were found with respect to students' participation in work-based learning activities. In particular, 35 percent of students in the Academy group reported being employed in a job that was connected to school. In contrast, 26 percent of the non-Academy students reported participating in such a job. Significant differences were also found in the percentages of Academy and non-Academy students who reported being employed in a job that included high-quality work-based learning content. Twenty-two percent of students in the Academy group reported having such a "high quality" work experience, compared with 17 percent of students in the non-Academy group.

- **Over half the students who were initially selected to enroll in a Career Academy did not participate intensively in career awareness and development activities or were not involved in work-based learning activities.**

The findings presented in Figure ES-4 are encouraging in that they show that Career Academies have a significant impact on student participation in a variety of work-related learning activities. At the same time, they indicate that over half the students who were selected to enroll in a Career Academy did not participate intensively in these activities. Two sets of factors help explain why students did not participate.

The first set of factors concerns the patterns of student enrollment in and attrition from the Academy programs. First, nearly half the students who were initially selected for the Academy programs either never enrolled in them (about 13 percent of those selected) or enrolled and then left before the end of their 12th-grade year (about 35 percent of those selected). Many of the career awareness and work-based learning activities in the Academies were not scheduled to occur until the 11th or 12th grade. As a result, more than half the students who never enrolled or who left the Academies before the end of 12th grade did not participate in these activities. Students gave a variety of reasons for either not enrolling in an Academy or enrolling and then leaving. Over half these students reported that they lost interest in the Academy or chose to attend another program for other reasons. About one-third reported that they moved or transferred schools, and about 13 percent reported that they dropped out of high school or were asked to leave the Academy for academic or behavior reasons. Student enrollment and attrition patterns are extremely important to understanding the potential effectiveness of the Career Academies and will be addressed in greater detail in the next report from the evaluation.

A second set of factors affected participation among students who remained in the programs throughout high school. Specifically, a number of Academy students either opted not to participate in the career awareness or work-based learning activities or did not meet the Academy's eligibility criteria for participation. In a few cases, the Academies reported that students could not be placed in activities because of the limited number of slots available.

Next Steps for the Career Academies Evaluation

This report, focusing on employer partnerships and work-related learning activities for students, builds on the information about Career Academies that has been presented in previous reports from this study. The full story of how Career Academies affect student experiences and performance during high school and beyond is still unfolding. Future reports from the study will add to this evolving story in several important ways. The next report (scheduled to be released later in 1999) will include a broader array of student experiences. It will examine the extent to which the Career Academies have improved student engagement and performance in high school, increased graduation rates, and opened opportunities to enter post-secondary education and employment. That report will also examine whether some versions of the Career Academy approach — reflected in the differences among the 10 sites in the study — are more effective in improving student outcomes than others. Finally, additional reports will include information about how the Academies affect student outcomes in their post-secondary years.

Chapter 1

Introduction

The Career Academy approach represents one of the most widely established high school reform initiatives that encompasses the key principles of the national school-to-work (or school-to-career) movement. The primary goals of the Career Academy approach are to improve students' performance in high school and to provide them with clearer pathways to post-secondary education and careers. Academies are most often organized as schools-within-schools in an effort to create more supportive teaching and learning communities. Using a career theme, they attempt to integrate a college preparatory academic curriculum with more applied, occupation-related courses. They establish partnerships with local employers as a means to increasing students' awareness of career options in a given field and providing them with learning opportunities in a work setting. Career Academies have been in existence for nearly 30 years, well before the school-to-work movement was crystallized in the federal School-to-Work Opportunities Act in 1994. Thus, Career Academies can provide important lessons about how policymakers and practitioners in school states and districts can put into practice the principles and objectives of this approach to improving high schools.

In 1993, the Manpower Demonstration Research Corporation began a longitudinal evaluation of the Career Academy approach in 10 high schools across the country. The primary goal of the evaluation is to measure the extent to which the Career Academy approach improves students' performance and engagement in high school, enhances the quality of work experiences they have during high school, and prepares them for successful transitions to post-secondary education and employment opportunities. The study is being funded by the U.S. Departments of Education and Labor and 14 private foundations and organizations.

This is the third in a series of reports from MDRC's High School Career Academies Evaluation. The first report described the 10 sites participating in the study and their Career Academies and provided information about the background characteristics of their students and teachers.[1] The second report began to look inside the Career Academies and explored the extent to which the programs served as "communities of support" for students and teachers.[2] That report noted that the school-within-a-school organization of the Career Academies provided several conditions that could promote interpersonal and instructional supports aimed at enhancing teacher effectiveness and student engagement in school.

The current report extends the study's focus beyond the school-based elements of the Career Academies. It describes the partnerships that the participating Academies formed with local employers and the activities they developed to connect high school students with the world of work. This report also presents a systematic analysis of the extent to which the Career Academies increased student exposure to a variety of work-related experiences both in and outside of school. To do so, it compares the experiences of Career Academy students with those of an equivalent group of non-Academy students in the same locations. The findings presented in this report shed light on factors that affect the development and sustainability of partnerships between schools and employers. They also highlight a number of challenges Career Academies face in creating high quality career awareness and work-based learning activities and then engaging large numbers of students in them.

---

[1] Kemple and Rock, 1996.

[2] Kemple, 1997a.

Although the information in this report goes further than results presented in the previous reports, the full story of how Career Academies affect student experiences and performance during high school and beyond is still unfolding. Future reports from the study will add to this evolving story in at least three important ways. First, the next report from the study (scheduled for mid-1999) will focus on measuring the extent to which the Career Academies have improved student engagement and performance in high school, increased their graduation rates, and opened opportunities for them to enter post-secondary education and employment. Second, the next report will also begin to examine whether some versions of the Career Academy approach — reflected in the differences among the 10 sites in the study — are more effective in improving student outcomes than others. Finally, two additional reports will include information about how the Academies affect student outcomes during their post-secondary years.

The remainder of Chapter 1 provides an overview of the rationale and policy context for the resurgence of initiatives — including Career Academies — to develop more productive connections between school and work for high school students. It also discusses the fact that the key goals of these initiatives, as well as many of the components of the framework that characterize their implementation, are uniquely embedded in the Career Academy approach. Part of this discussion includes the description of a conceptual framework that illustrates some of the pathways through which the Career Academy approach may affect student work experiences and other behaviors. This framework also helped guide the analyses presented later in the report. The chapter concludes with a brief overview of the Career Academies Evaluation.

I. Rationale and Policy Context for Connecting High School and the World of Work

Although debates about the most productive relationship between the American high school and the world of work date back to the turn of the century,[3] the last 10 years have seen a major resurgence of concern about the way high schools prepare students for the labor market.[4] A central premise of these concerns is that high school education is, in a broad sense, a "vocational" enterprise. That is, high schools play a central role in providing students with some of the most essential skills, habits, and credentials they will need to enter the labor market, even (and, in many cases, particularly) when that pathway leads through postsecondary education.[5] Some students must rely on the preparation they receive in high school as the key to direct entry into the labor market (either before or after graduating). Other students use their high school credentials and skills to seek further education before entering a career in the labor market. In either case, the consequences of what students experience in high school have a direct and increasingly dramatic effect on their longer-term employment prospects.[6] During the last 10 years, high schools have been criticized increasingly for neglecting to provide students with useful skills and experiences that can orient them toward productive careers in the labor market. The following discussion describes three interrelated areas in which this neglect has been identified.

---

[3] Lazerson and Grubb, 1974.

[4] William T. Grant Foundation, 1988; Berryman and Bailey, 1992; Urquiola et al., 1997; Committee for Economic Development, 1998.

[5] Grubb, 1995.

One set of criticisms focuses on the content of the high school curriculum and the instructional strategies used to teach that content. The economy has come to demand workers who have mastered what have been called "the new basic skills" such as problem solving, team work, and computer competency, in addition to reading, writing, and math.[7] On the other hand, high schools have maintained the same basic organizational structure, curriculum, and relationship with the labor market that they employed a century ago.[8] This situation has created a cycle of problems. First, there is a growing perception that high schools do not provide students with skills that are valued and needed in the labor market. This skills mismatch is combined with the fact that high school students rarely have work experiences that can compensate for a lack of appropriate education and training. In any case, employers rarely consider students' academic records (other than their diplomas) and high school work experiences when making hiring decisions. Students realize this and have little incentive to stay engaged and do well in school unless they are competing for entry into a four-year college, where academic performance and high school experiences do matter. The end result is an employer community that feels it does not have an adequate supply of workers with the skills needed for available jobs and a supply of young people with minimal productive capacity and poor prospects for the future.[9]

Even for students intent on entering four-year colleges, high schools have been criticized as having lagged behind changes in the economy and the larger society.[10] From a conceptual perspective, the high school curriculum is seen as out of step with evidence from cognitive science suggesting that student retention of academic skills is enhanced when the skills are taught in connection with practical applications.[11] From a practical standpoint, college students who must work or who choose to work are often confined to low-paying jobs that require them to work longer hours to produce sufficient earnings. Further, students who leave college before graduation have little in the way of applied knowledge, practical skills, or high quality work experience that they can use to enter the workforce.

A second area in which high schools have been criticized for neglecting their mission of preparing students for the labor market focuses on the isolation of high schools and high school students from other institutions, particularly employers in the community. Until relatively recently, many employers saw little incentive to participate in the process of improving the way schools prepare students for the world of work. Even 30 years ago, high school graduates, as well as many dropouts, were adequately prepared for the high number of low-skill and low-autonomy jobs available to them. During the last 15 years, this situation has changed as employers must compete locally and globally for more highly educated and skilled workers and as low-skilled labor can be acquired more cheaply in foreign countries.

---

[6] Murnane and Levy, 1996.

[7] Murnane and Levy, 1996.

[8] Grubb, 1995.

[9] National Center on Education and the Economy's Commission on the Skills of the American Workforce, 1990; SCANS, 1991; Committee for Economic Development, 1998.

[10] Bailey and Merritt, 1997.

[11] Resnick, 1987; Raizen, 1989.

Further, schools and employers have often struggled to find roles for employers that are seen as both valuable to students and teachers and productive for employers. A major difficulty has been that there is no clear point of entry for employers to become actively and productively involved in schools (other than through financial contributions). Similarly, educators have few opportunities or incentives to collaborate with employers to identify areas of common concern and to develop strategies for better preparing students for productive places in the labor market. During the last 15 years, employers have become much more aggressive in local, state, and national policy debates on education and have been more active in building linkages with schools.

A third set of concerns about the labor market mission of high schools involves the lack of clear pathways leading from high school to the world of work. In short, students rarely see potential connections between what they do during their high school years and the opportunities they would like to have in the future.[12] In particular, students have few opportunities to learn about the skills and acquire the credentials they need to make a successful transition to a desired career. Many high schools have very weak personal and institutional linkages with post-secondary schools and workplaces. Finally, high schools have difficulty creating an environment that provides students with personal, academic, and vocational supports and guidance that can reveal practical pathways to a career.

Traditionally, pathways between school and work have primarily been in vocational education, which has been criticized for focusing too narrowly on skills training for specific jobs. The career education movement in the 1970s began to broaden the vocational mission of high schools by proposing that the entire high school curriculum be oriented toward career preparation.[13] Although the intent was to reshape all aspects of the high school, the primary legacy of career education was a course designed to help students map out pathways between high school and a career. Even this legacy evaporated, in large part because it was never connected to the curriculum or to other activities in or outside the high school.[14]

The more recent round of problem identification has not been without constructive proposals for improving high schools in general and enhancing their connection to the world of work in particular. Broadly conceived, these proposals have fallen under the umbrella of the "school-to-work" movement, which encompasses "the set of complex and varied initiatives launched by local communities, states, and the federal government to create more effective arrangements of school and work for young people."[15] The goals of these initiatives range from engaging employers in the process of improving the schools to engaging the schools in the process of preparing a better-prepared workforce and from enhancing the relevance of what young people learn in the classroom to enhancing the rigor of what they can learn at work and about work.

---

[12] Steinberg, 1998.

[13] Grubb and Lazerson, 1975.

[14] Grubb, 1996.

[15] Urquiola et al., 1997.

While it did not create these initiatives, the federal passage of the School-to-Work Opportunities Act (STWOA) in 1994 marks a critical milestone in the school-to-work movement. The vision of STWOA was to provide states and localities with seed money to build partnerships among schools, employers, and other public and private agencies. These partnerships were charged with improving the school curriculum, providing students with structured learning experiences in the workplace, enhancing both academic and vocational skills, and highlighting pathways to productive careers and more focused personal goals.[16] An important stipulation in STWOA is that school-to-work opportunities be designed for involvement on the part of all students and that they make an explicit commitment to opening, rather than limiting access to, pathways to college.

Recent studies of school-to-work initiatives that either preceded or have grown out of STWOA highlight a number of promising developments in the effort to accomplish the ambitious goals of the movement.[17] These studies also identify a number of significant challenges to implementing particular approaches and to creating systemic infrastructure that has the support of all the key stakeholders and can ensure that all students have access to the full range of opportunities envisioned in the Act. Very little is known, however, about whether students who participate in these initiatives actually feel that they are better connected to the world of work during high school. Further, even when students are better connected to the world of work, it is not clear that they are deriving benefits such as higher quality work experiences and a stronger sense that their experiences during high school are relevant to their goals for the future. Still less is known about whether high quality work-related learning experiences translate into high levels of performance in high school and more successful transitions to post-secondary education and employment.

II. Career Academies as an Infrastructure for Connecting School and Work

The structural elements of the Career Academy approach — its school-within-a-school organization, its integrated academic/vocational curriculum, and its employer partnerships — provide direct responses to a variety of problems that have been identified in high schools.[18] In particular, they are designed to address many of the concerns that have given rise to the school-to-work movement by integrating academic and vocational instruction, providing work-based learning opportunities for students, and creating clearer pathways to post-secondary education, employment, or a combination of the two.

Figure 1.1 is a simplified conceptual model that illustrates some of the pathways through which the three key structural elements of the Career Academy approach are intended to enhance students' success in high school and to facilitate their transition to post-secondary education and

---

[16] Hershey et al., 1997.

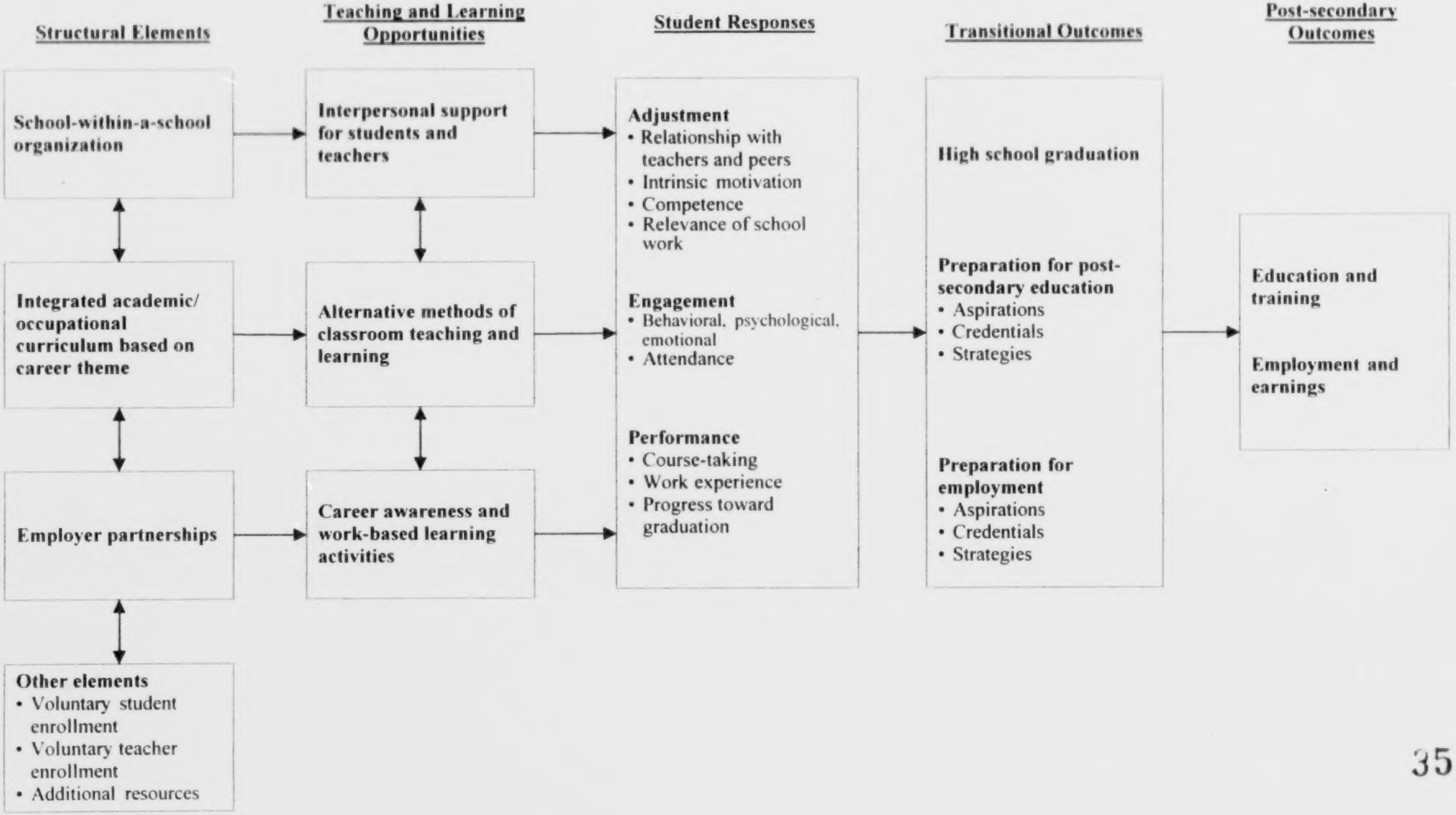
[17] Pauly, Kopp, and Haimson, 1994; Hershey et al., 1997; Pedraza, Pauly, and Kopp, 1997.

[18] Although they have been described using different terms, there is a growing consensus in the field that these three elements most clearly define the Career Academy. Efforts to help shape this consensus have been led by the Career Academy Support Network in consultation with leaders of the various national, state, and district Academy networks as well as other practitioners, administrators, policymakers, funding agencies, and researchers that have been associated with Career Academies (see Stern, Dayton, and Raby, 1998).

Figure 1.1

Career Academies Evaluation

Simplified Model of the Career Academy Approach


Structural Elements
Teaching and Learning Opportunities
Student Responses
Transitional Outcomes
Post-secondary Outcomes
School-within-a-school organization
Interpersonal support for students and teachers
Integrated academic/ occupational curriculum based on career theme
Alternative methods of classroom teaching and learning
Employer partnerships
Career awareness and work-based learning activities
Other elements
• Voluntary student enrollment
• Voluntary teacher enrollment
• Additional resources
Adjustment
• Relationship with teachers and peers
• Intrinsic motivation
• Competence
• Relevance of school work
Engagement
• Behavioral, psychological, emotional
• Attendance
Performance
• Course-taking
• Work experience
• Progress toward graduation
High school graduation
Preparation for post-secondary education
• Aspirations
• Credentials
• Strategies
Preparation for employment
• Aspirations
• Credentials
• Strategies
Education and training
Employment and earnings

careers. Here, structural elements refer to those aspects of the Career Academy approach that represent changes to the organization of a high school, modifications of the curriculum, or reconstituted relationships with external organizations. Such structural changes require shifting the use of existing resources and, in most cases, additional resources. As the figure illustrates, these structural changes are designed to enhanced teaching and learning opportunities, which in turn are aimed at improving student adjustment, engagement, and performance in high school.

A previous report from this evaluation examined some of the ways in which the school-within-a-school organization has facilitated more supportive teaching and learning communities for students and teachers.[19] An unpublished paper from the study focused on the ways that the effort by Academies to integrate academic and vocational curriculum helped enhance applied and work-related teaching and learning opportunities in the classroom and provided students with practical skills and activities that were aimed at connecting them with post-secondary education and work.[20] These features of the Career Academy approach reflect key principles of broader school reform initiatives that advocate restructuring high school into smaller, more personalized learning environments, providing teachers with more influence over their work through decentralized management, and engaging teachers in interdisciplinary curriculum development and applied teaching and learning strategies. They also directly support many of the key goals of the school-to-work movement.

The current report focuses on the third structural feature of the Career Academy approach — employer partnerships and the career awareness and work-based learning activities that develop from the partnerships. Figure 1.2 is an amplified section of Figure 1.1 that illustrates the relationships among the core dimensions of the Academy approach that make up this feature and are aimed at building connections between high school and the world of work.

The first column of Figure 1.2 lists two dimensions of the Career Academy approach that serve as the foundation for forging real partnerships with employers and building on those partnerships to create new learning opportunities for students. First, a Career Academy strives to build formal relationships with a group of employers in its community. In general, the employer partnerships can be defined as ongoing coordinated efforts to engage local employers in supporting the Academy's programs and sponsoring a range of work- and career-related activities for students. The partnership typically includes employer representatives, teachers, school administrators, parents, and students. Many Academies create formal advisory boards that provide guidance on curricular and extracurricular activity development and may even assist with the management and administration of the program. Employer partners typically support the Academies by providing additional material resources or even making financial contributions. Most importantly, however, the employer partners contribute the time for their employees to appear as guest speakers in the school, supervise student internships, serve as mentors for individual students, and provide other kinds of support.

The second dimension shown in the first column of Figure 1.2 refers to the people who serve as the liaisons between the employers and the Career Academies and who coordinate the various employer-sponsored activities. This role in the Career Academy is particularly crucial to

---

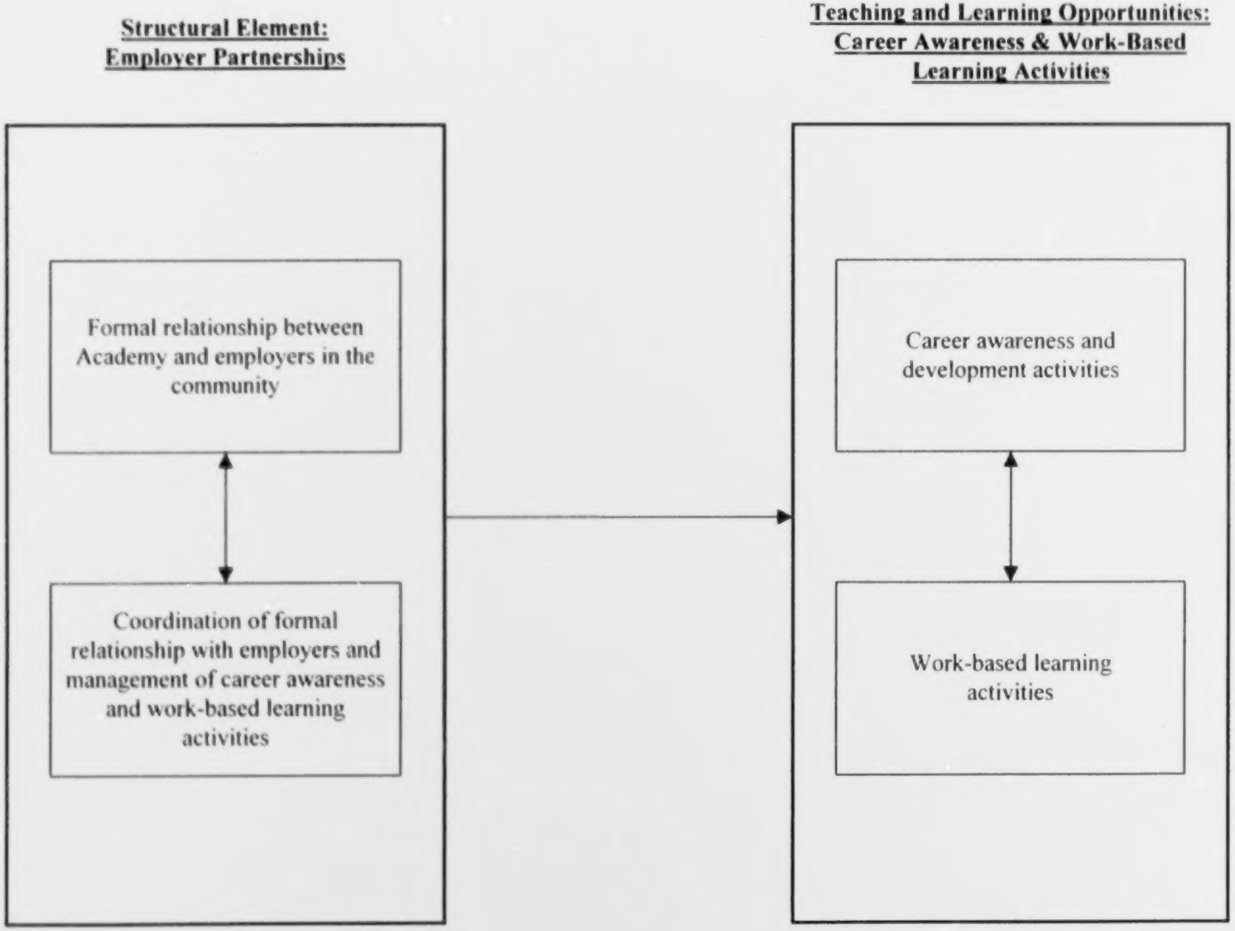
[19] Kemple, 1997a.

[20] Kemple, 1997b.

Figure 1.2

The Career Academies Evaluation

Structural and Learning Opportunity Dimensions of the Career Academies Aimed at Connecting School and Work


Structural Element: Employer Partnerships
Teaching and Learning Opportunities: Career Awareness & Work-Based Learning Activities
Formal relationship between Academy and employers in the community
Coordination of formal relationship with employers and management of career awareness and work-based learning activities
Career awareness and development activities
Work-based learning activities

creating and sustaining the various career development and awareness activities that are offered to students both in school and outside of school. The person or people in this role also take responsibility for developing work-based learning opportunities for students and monitoring student involvement in these activities. In some cases, this role is filled by Career Academy teachers who also have classroom responsibilities (although, in most cases, with a reduced course load). In other cases, the role is filled by non-teaching administrators whose primary responsibilities focus on one or more Academies.

The second column of Figure 1.2 lists two broad groups of work-related learning activities that are built on the employer partnerships and managed by the coordinators. The first group is referred to in the figure as career awareness and development activities. These activities are intended to enhance students' understanding of the world of work in general and their awareness of occupations within the program's broad career theme. Some of these activities occur outside of school. They include field trips designed to expose students to different work environments and allow them to observe daily work activities during a regular work day. Such activities also include job shadowing, which gives students the opportunity to accompany an adult on her or his job for a day or more. Some Career Academies develop mentoring programs to help students make connections with caring adults who can provide personal and career guidance and support. Other career awareness and development activities occur in school. These include formal and structured attempts to infuse Career Academy classes with discussions and activities focusing on careers or students' work-based learning experiences. They also include career counseling and the formal and informal discussions students have with their teachers and peers regarding preparation for work.

The second type of work-related learning activity shown in Figure 1.2 is typically referred to as "work-based learning" and has been defined as "work experiences that are planned to contribute to the intellectual and career development of students."[21] Work-based learning activities are probably the most intensive and distinctive work-related aspect of the Career Academy approach. Here, students are typically placed in jobs that have been developed with the employer partners and are connected to school. Students have the opportunity to learn both job-specific skills and more general work habits and behaviors.

These employer- and work-related dimensions of the Career Academy approach are intended to support and be supported by the school-within-a-school organization and the integrated curriculum. As is illustrated in Figure 1.1, the combination of the various teaching and learning opportunities that are hypothesized to evolve from these structural features is aimed at enhancing student engagement and performance in school. With higher levels of engagement and performance, students should be better prepared to graduate with the credentials and strategies needed to enter post-secondary education and employment.

III. The Career Academies Evaluation

In 1993, the Manpower Demonstration Research Corporation (MDRC) began development work for a unique study of the Career Academy approach. Its primary purpose is to provide rigorous evidence about the efficacy of the theories and hypotheses embedded in the conceptual framework illustrated in Figure 1.1. The evaluation responds to the growing need for reliable information about the effectiveness of school-to-work and other major school reform initiatives by providing policy- and practice-relevant information on two broad questions:

---

[21] Office of Technology Assessment, 1995, p. 13.

- To what extent do the Career Academies improve students' school- and career-related performances over and above what they would have achieved if they had not had the opportunity to participate in an Academy?
- How are the Career Academies different from the high school environments in which Academy students would otherwise have been enrolled, and how do these differences shape students' post-secondary education and career preparation?

The Career Academies Evaluation consists of two components: the *impact study*, which addresses the first question above, and the *process and implementation study*, which addresses the second. When the evaluation is completed, these two components will be integrated to explore the factors that help explain the Academies' effectiveness or lack of effectiveness.

The primary focus of the impact study is to determine the extent to which the Career Academy approach affects students' high school experiences and improves their motivation and engagement in school, their progress toward graduation, and their preparation for and transition to post-secondary education and work. Most studies, including the previous studies of Career Academies, attempt to determine the effectiveness of a particular education intervention by comparing outcomes for students who are exposed to the intervention with outcomes for students who are not exposed to it. The primary challenge for such research is to minimize any differences between the two groups of students that were not caused by the intervention. To do this, it is necessary to ensure that students who are exposed to the intervention are as similar as possible (in terms of their background characteristics at the time they enter the intervention) to those students who are not exposed to the intervention.

The Career Academies Evaluation is a rarity in the field of education research in that it has demonstrated the feasibility of implementing a random assignment research design within an ongoing high school program. This approach required that certain threshold conditions be present or created in each of the participating sites.[22] First, key stakeholders — including district administrators, teachers, parents, and students — had to agree that if the Academies had more eligible applicants than they could serve, random assignment was a fair way to determine which applicants would be invited to participate. Toward that end, each of the Career Academies identified and recruited large numbers of eligible students for the study, with the result that nearly twice as many students applied for the Academies as the programs were able to serve. The Academies also had to modify their application process to accommodate two important requirements of the research design: (1) informing students and their parents about the study and gaining their consent to participate, and (2) having all applicants complete a questionnaire on their background characteristics and prior experiences in school. When each of these conditions was met, it was then feasible and appropriate to use random assignment to create the program and control groups for the evaluation.

---

[22] See Chapter 4 in Kemple and Rock, 1996, for a more detailed description of how the random assignment procedure was implemented for this study.

For this evaluation, a total of 1,885 students from 10 sites entered the research sample over three school years. All these students were determined by the respective Career Academies to be eligible and appropriate for participation in their programs. Of these, 1,027 students were randomly assigned to the program group (referred to in this report as the Academy group) and were accepted for admission to the Academies.[23] The remaining 858 students were randomly assigned to the control group (referred to in this report as the non-Academy group), were not invited to participate in the Academies, and could choose other options in the high school or school district. In most cases, control group students enrolled in the general programs in the participating high school, but in some cases control group students enrolled in city-wide magnet programs or schools, or in vocational education programs.[24]

The process and implementation study will document the key differences between the Career Academies and the high schools within which they are located and in which most of the control group students in the research sample are enrolled. First, it will investigate how the core components of the Academy model were implemented and sustained in the 10 study sites. It will also seek to explain how the experiences of the Academy students differed from those of students in the regular high school programs. Finally, data will be obtained to learn how contextual factors (such as school district policies and trends in the local labor market) influenced the Academies' operation and effectiveness.

To address these issues, MDRC collected several types of data on the study sites. First, observation and interview data were collected during a series of field research visits to each of the sites. These visits provided MDRC researchers with the opportunity to interview Academy teachers and students, school and district administrators, and local employer partners. MDRC staff also observed classes and other program activities, such as student recruitment and special events. Extensive qualitative information was also collected during the site selection process and during visits to the sites to monitor implementation of the research procedures. This information is being used to describe the particular characteristics of the participating Career Academies and their local contexts.

Survey data were also collected and are being used to make systematic comparisons between the experiences and perceptions of Academy students and teachers and those of their non-Academy counterparts. Finally, MDRC collected data from student transcripts and school administrative records to document the students' patterns of enrollment and attendance in Academy programs while they are in high school.

---

[23] Not all students who were randomly assigned to the Academy group became Career Academy students. While they were given the opportunity to enroll in a Career Academy, some chose not to do so and others enrolled but subsequently dropped out, either transferring to another high school program or leaving high school altogether. The Career Academies Evaluation program group includes all students who were randomly assigned to the Academy group, whether or not they were ever students at a Career Academy and whether or not they remained enrolled in an Academy. Of those in the program group who completed the 12th Grade Survey, from which the participation data in Chapter 3 are drawn, 13 percent had never enrolled in a Career Academy and 35 percent had enrolled in a Career Academy but dropped out before the end of the 12th grade. Nevertheless, they are included whenever the text refers to "students in the Academy group" or "Academy group members."

[24] Magnet schools or programs are racially mixed public schools, usually established to meet desegregation goals, which draw students from throughout a school district on a voluntary basis and offer an innovative educational program.

IV. Sites in the Career Academies Evaluation

The 10 sites participating in the Career Academies Evaluation were chosen strategically, with the goal of providing a credible test of the Career Academy approach as it had been defined in previous research and implemented in a broad range of settings.[25] MDRC sought to ensure that the selected Career Academies were well established rather than in the initial or partial stages of implementation. At the same time, it was important that the participating Academies not be "hothouse" programs — that is, incapable of being implemented under a broad range of conditions and circumstances. Thus, Academies were selected to include school districts and high schools reflecting the diversity of settings (large urban centers and small cities) under which Career Academies have been implemented. MDRC was specifically interested in Academies serving a broad range of students, including those who were perceived to be at risk of not succeeding in the regular high school environment.

In addition, MDRC sought high schools in which there was a clear contrast between the Career Academy and other programs available to students. This criterion was important, because one of the primary questions for the study was whether the Career Academy approach improves student outcomes above and beyond what would have occurred had the students not had the opportunity to attend an Academy. Some schools and school districts operate more than one Career Academy or other Academy-like programs, such as school-within-a-school theme programs, or school-to-work transition programs that include integrated curricula and work-based learning experiences. If such schools were included in the study, a high proportion of students in the Academy and control groups would probably have been enrolled in similar programs. This situation would reduce the contrast between students' experiences in the Academy and control groups and could make the Academies appear ineffective. Finally, the key stakeholders in the school system — the school principal and other administrators, teachers, and school district officials — had to agree to participate in the study and to cooperate with the requirements of the research design.

Figure 1.3 shows the names, locations, and affiliations of the 10 Career Academies participating in the evaluation. Most of the nine school districts in the evaluation (one district — San Jose, California — includes two of the participating Career Academies) are large and enroll substantial percentages of black and Hispanic students compared with national averages. The participating school districts also, on average, have higher dropout rates, unemployment rates, and percentages of low-income families. Most Career Academies across the country are located in such districts, and MDRC purposely sought such sites for the Career Academies Evaluation.

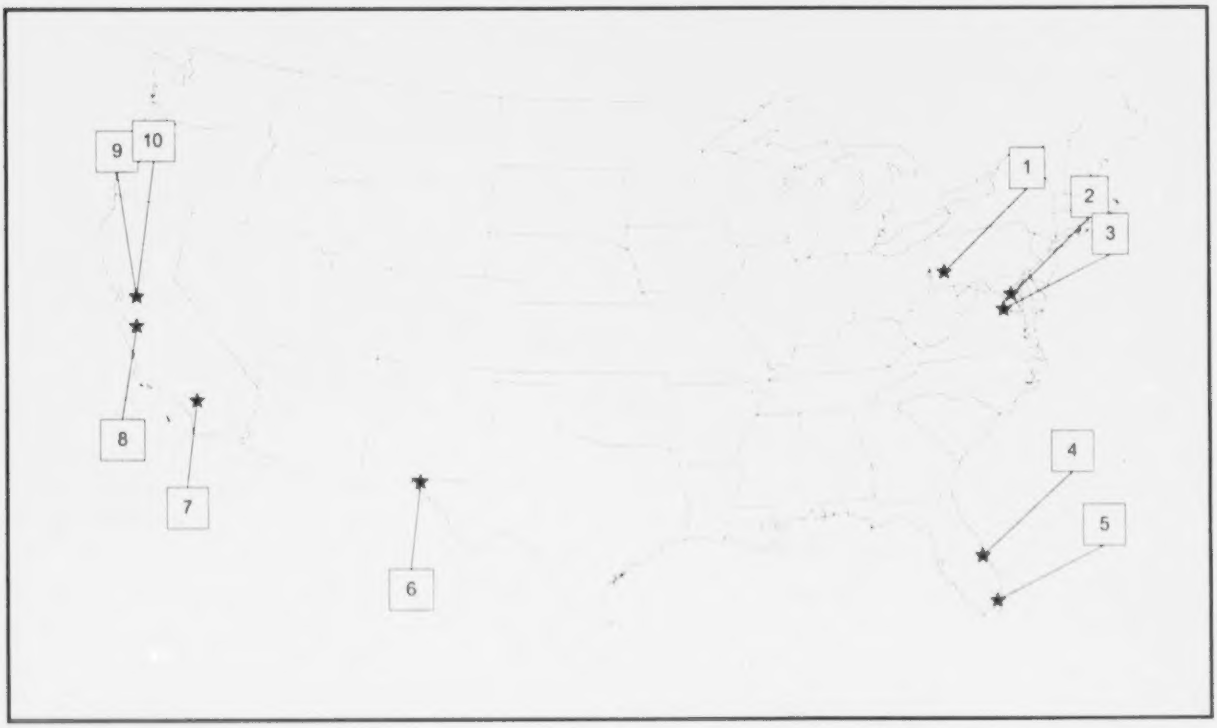
All the sites had established the basic Career Academy components described earlier in the chapter: a school-within-a-school organization, an integrated academic/occupational curriculum, and employer partnerships. This combination of features was not available elsewhere in the

---

[25] See Chapter 2 in Kemple and Rock, 1996, for a more detailed description of the criteria and process used to select sites for this study.

Figure 1.3

Names, Locations, and Affiliations of Participating Career Academies



	Academy and High School	School District and City	Academy Network and School Year Academy Started
1.	Business and Finance Academy George Westinghouse High School	Pittsburgh Public Schools Pittsburgh, Pennsylvania	Independent 1984-85
2.	Academy of Finance Lake Clifton/Eastern High School	Baltimore City Public Schools Baltimore, Maryland	National Academy Foundation 1987-88
3.	Public Service Academy Anacostia High School	District of Columbia Public Schools Washington, D.C.	D.C. Public Schools Academy Network 1989-90
4.	Academy for Aerospace Technology Cocoa High School	Brevard County Public Schools Cocoa, Florida	Florida's Academies for Career Development and Applied Technology 1993-94
5.	Academy of Travel and Tourism Miami Beach Senior High School	Dade County Public Schools Miami Beach, Florida	National Academy Foundation 1991-92
6.	Health Professions Academy Socorro High School	Socorro Independent School District Socorro, Texas	Independent 1991-92
7.	Global Business Academy Valley High School	Santa Ana Unified School District Santa Ana, California	California Partnership Academy 1991-92
8.	Watsonville Video Academy Watsonville High School	Pajaro Valley Unified School District Watsonville, California	California Partnership Academy 1991-92
9.	Electronics Academy (SC) Silver Creek High School	East Side Union High School District San Jose, California	California Partnership Academy 1984-85
10.	Electronics Academy (I) Independence High School	East Side Union High School District San Jose, California	California Partnership Academy 1984-85

participating high schools.[26] Each Career Academy attempted to serve a wide range of students, including those who appeared to be at risk of dropping out.

Figure 1.3 indicates that the participating Academies offer a range of occupational themes: three are in the business and finance fields; three focus on high-technology areas such as electronics and aerospace technology; and there is one each in the fields of health occupations, public service, travel and tourism, and video technology. The participating programs were drawn from most of the major established networks of Career Academies across the country, with four from the California Partnership Academy network, two from the National Academy Foundation network, one from the Florida network of Academies for Career Development and Applied Technology, and one from the network of Academy programs created by the District of Columbia Public Schools. Two of the participating Academies were developed independently through local high school or district initiatives. Figure 1.3 also indicates that, as of the 1994-95 school year (when the last sites joined the study), the participating Career Academies had been in operation for as few as 2 years and as many as 11 years.

In summary, the sites participating in the Career Academies Evaluation provide a solid foundation on which to build a credible assessment of the implementation and impact of the Career Academy approach. Three important cautions should be kept in mind, however, in interpreting the findings from this study. First, because the participating sites were chosen strategically, rather than randomly, the findings from this study cannot necessarily be generalized to all schools and school districts that operate Career Academies. While the sites as a group share the characteristics of typical urban and small-city school districts and individually reflect much of the diversity of such districts, they may differ in important ways that limit the generalizability of the findings.

Second, many of the reports that are produced from this study will focus on findings that are aggregated across the full sample of students and sites. While such findings shed light on the impact or implementation of the Career Academy approach more generally, they may mask important sources of variation among the sites. As the study proceeds, therefore, an effort will be made to determine whether particular sites or groups of sites provide useful lessons about the potential strengths and limitations of the Academy approach in particular contexts.

Third, like their host high schools and school districts, the participating Career Academies are dynamic and evolving. They must confront factors such as staff turnover, increases or decreases in funding, changes in local or state education policy, shifting levels of support from building or district staff, and changes in the amount and types of support they receive from employer partners. Because this is a longitudinal study, it will be able to provide a realistic picture of how ongoing programs evolve and change in the context of dynamic high schools. As a result, the reports from the study will highlight the periods reflected in the data and indicate key contextual factors that influence the applicability of the findings.

In general, most of the programs modified various components of the Career Academy approach in response to changing conditions in their host high schools or school districts, and many of them evolved toward more complete versions of the model. It should be noted, however, that three of the participating Career Academies underwent significant changes toward the end of the study period. The employer partnership at the Business and Finance Academy in Pittsburgh was disbanded during the 1997-98 school year. The Public Service Academy in Washington, D.C., had undergone a great deal of stress when a core group of teachers was transferred to other schools and its host high school began establishing Academies throughout the school. Finally, the Academy for Aerospace Technology in Cocoa was completely disbanded at the end of the 1996-97 school year. These changes are discussed in more detail in Chapter 2. It does not appear likely, however, that these events significantly affected students in the study sample, because they occurred late in the follow-up period and toward the end of their participation in the programs. The Academy for Aerospace Technology class of 1998 is an exception. These students did not have the opportunity to enroll in the Academy during their twelfth-grade year.

---

[26] Although some of the participating high schools do operate other programs that they classify as Career Academies, information collected for this study indicated that most of these programs do not include the core characteristics of the Academy approach described earlier. As a result, the participating Career Academy programs represent a clear contrast with the other programs in the high schools.

V. Overview of This Report

As was noted earlier in this chapter, this report focuses on the third structural feature of the Career Academy approach — employer partnerships and the career awareness and work-based learning activities that develop from the partnerships. Chapter 2 in this report describes these work-related dimensions of the Career Academy approach as they were implemented and evolved in the 10 sites participating in the study. It first discusses a number of basic similarities among the 10 sites. In particular, they had all engaged a group of employers in supporting the Career Academies in a variety of ways and in providing students with a number of career awareness and work-based learning experiences. This finding fulfills a key objective of the Career Academies Evaluation: to shed light on the operation and effectiveness of relatively mature sites that share the basic features of the Career Academy approach. As is discussed in the first report from the study, the evaluation was intended to focus where possible on functioning Career Academies, rather than on programs that were in initial or partial stages of implementation.

The similarities among the sites discussed in the first section of Chapter 2 are cast in broad terms and mask the high degree of variation in particular program characteristics and operating strategies. Therefore, the second section of Chapter 2 provides a more detailed description of the work-related dimensions of the participating Career Academies. In doing so, it provides examples of some program characteristics and practices that were fairly typical among many of the sites. It also provides examples that illustrate the high degree of variation among the sites.

Chapter 3 examines the rates of student participation in various career awareness and work-based learning activities. In particular, Chapter 3 compares the experiences of a group of students who had the opportunity to enroll in a Career Academy with those of a group of students who did not have the opportunity to enroll. The analysis in Chapter 3 provides findings about differences in the experiences between Academy and non-Academy students *that are pooled across the 10 sites in the study*. As such, the findings provide useful insights into the *average* impact that Career Academies have on student participation in career awareness and work-based learning activities.

Such averages, however, mask potential variation in participation patterns that may be associated with differences in the way the Career Academy programs operate. Because the sites differ on a number of dimensions, in addition to those discussed in Chapter 2, the current report does not present an analysis of how differences in student participation patterns are related to differences in site implementation strategies. This topic is explored to a limited extent in Chapter 3, but it will be addressed in more detail in future reports and in the context of a wider array of student outcomes and a broader range of Academy program dimensions.

Chapter 2

Characteristics of Career Academy Employer Partnerships and Career Awareness and Work-Based Learning Activities

Two key objectives of the Career Academy approach are to increase students' awareness of the many career pathways in a given field and to provide them with learning opportunities in a work setting. The primary vehicles that Career Academies use to meet these objectives are the partnerships they form with local employers. This chapter describes those dimensions of participating Career Academies that support and are supported by their employer partnerships. Specifically, it describes the roles employers play in each of the sites and discusses the strategies the Career Academies use to coordinate employer involvement. The chapter also describes the various work-related activities that the employer partners support and sponsor through their involvement with the programs. These activities provide the most direct means by which the Career Academies attempt to connect students with the world of work.

The chapter draws on information collected during several field research visits to each of the 10 sites participating in the study. The primary research activities took the form of interviews with Career Academy staff members, staff from the participating high schools and school districts, staff from the employer partners, and Academy students. Other research activities included observing various Academy-related activities both in school and at work sites, attending employer advisory board meetings, and accompanying Academy staff to evaluate students' performance in their work-based learning experiences at employer partner work sites. The "database" of materials for the qualitative analysis included Academy program documents and student intern performance evaluations, field notes of qualitative research visits, notes of individual and group interviews, and transcripts of student focus groups. Interview and focus group transcripts were coded, and data corresponding to common topic areas were collected into common documents. These data were analyzed to shed light on commonalities among the sites in the study as well as to identify key areas that distinguish them.

The first section of the chapter highlights several overarching similarities among the participating Career Academies. In particular, it provides an overview of the basic program dimensions that define and support their employer partnerships. It also describes commonalities in the types of career awareness and work-based learning activities that the programs use to expose their students to the world of work. In this respect, each of the participating sites exhibited characteristics that clearly identified them as Career Academies and distinguished them from other programs or environments in the high schools in which they were located.

Although all the sites included the basic work-related features of the Career Academy approach in a general way, they also exhibited considerable variation on a wide range of specific program characteristics and operating strategies. The second section of this chapter describes some of the key differences across the sites in the particular characteristics of their employer partnerships and in the strategies they used to manage and sustain them. In general, the differences among the sites highlight the variety of strategies they have used to adapt to local needs and circumstances. In some cases, the variation among sites appears to reflect different approaches to achieving similar goals. In other cases, the variation is associated with apparent differences in the sites' capacity to engage students in high quality or intensive work-related activities. While the information in this section of the chapter may suggest some hypotheses about the relationship between program implementation strategies and effects on student experiences, the current report is not able to explore such hypotheses empirically. They will be addressed in future reports.

Finally, it is important to note that the chapter focuses on similarities and differences across the participating sites primarily during the period from the 1994-95 school year through the 1997-98 school year. This is the period during which most of the field research data were collected. It is also the period during which most of the students in the study sample would have had the opportunity to enroll in the Career Academies or in the regular high school programs in the sites. The Career Academies and their contexts, however, were not static during this or any other period. Over the course of the evaluation, there were periods of intense activity, growth, and excitement in the development of the employer partnership piece of the Career Academy approach. Yet it is important to emphasize the effort the sites had to put forth to sustain their relationships with employers over time, at the same time sustaining the other elements of the Career Academy model. Most notably, events in two of the sites led to their having to disband their employer partnerships and discontinue their work-related activities for students. It appears, however, that these events were likely to have affected a relatively small number of students who entered the study late in the sampling period. While the participating sites evolved and changed over the course of the study, the vast majority of Academy students in the study sample had the opportunity to experience some version of the key Career Academy work-related activities.

I. Similarities Among the Participating Career Academies

The discussion of similarities among the sites addresses one of the key objectives of the Career Academies Evaluation: to shed light on the operation and effectiveness of relatively mature sites that share the basic features of the Career Academy approach. As was discussed in the first report from the study, the site selection process was designed specifically to include Career Academies that had already established partnerships with local employers and had developed specific and formal roles for them.[1] This selection process was used to ensure, to the extent possible, that the evaluation would include functioning Career Academies, rather than programs that were in initial or partial stages of implementation.

This section of the chapter highlights a general set of characteristics that the participating sites shared and that distinguished them as relatively mature versions of the Career Academy approach. On the basis of the site selection process and the information collected through the ongoing field research, four overarching similarities emerged among the 10 Career Academies in the study in relation to the employer partners that participated with the respective programs.

First, each of the Career Academies had established a formal partnership with several employers from their communities. In their most basic form, the employer partnerships were the result of ongoing coordinated efforts to engage local employers in supporting the Academy programs and sponsoring a range of work- and career-related activities for students. Employers supported the Academies by contributing resources, most intensively in the form of time for their employees to participate in Academy-related activities as guest speakers, special event coordinators, or internship supervisors. Employers in each of the sites contributed material resources, including equipment or classroom aids that were intended to help students learn more about the career field. For example, an employer partner in one site donated a cardiopulmonary resuscitation (CPR) dummy for students to learn CPR techniques. In other sites, employers contributed computers and business application software or high-technology equipment that could provide students with hands-on experience with the types of equipment used in the workplace. Employers across the sites also provided information to Academy staff and students about current issues related to the career field and about the kinds of general and specific skills they look for in prospective employees.

---

[1] See Kemple and Rock, 1996.

Second, each of the sites included a person or group of people who assumed responsibility for coordinating employer involvement. These people served as the liaisons between the employers and the Academies and as the coordinators for the various employer-sponsored activities. One key function of the coordinators was to ensure that employers were aware of the needs and interests of the Academies and that the staff and students in the Academies were aware of the opportunities and resources being provided by the employers. These staff members also played a central role in organizing the various employer-sponsored activities and coordinating student participation in them.

Third, each of the Career Academies had established a series of activities designed to enhance students' understanding of the world of work in general and their awareness of occupations within the program's broad career field. Some of these activities took place in the schools; for example, individual guest speakers were brought in from business or industry, and career fairs involving representatives from multiple employers were held. The Academies and employers also collaborated to develop career awareness and development activities outside of school, including field trips, job shadowing experiences for individual students or groups of students, and mentoring arrangements between individual students and adults (typically staff from the employer partners). Employer partners from many of the sites participated in, and in some cases sponsored, extracurricular activities such as awards ceremonies for Academy students or career fairs or conferences involving several schools or Academies.

Fourth, each of the Career Academies developed a formal work-based learning program for their students. Here, the employer liaison or coordinator worked to identify or develop job opportunities for Academy students with one of the employer partners. In doing so, the coordinators made efforts to ensure, to the extent possible, that these positions were structured to provide opportunities for students to learn both about the particular job and about the range of jobs and career opportunities across the company or organization. These opportunities were facilitated by assigning students to an employee who was expected to supervise them on the job and spend time providing an orientation to the company and its range of work. Each of the sites also made efforts to build communication links between the work-based learning supervisors and the Academy staff. Most sites provided employers with academy-created student evaluation forms with which to assess the quality of students' work experiences from the perspective of the students themselves or of their supervisors.

These similarities provide an operational definition of the common work-related program dimensions to which Academy students across the sites were exposed. In other words, they reflect a basic set of conditions that would enable Academy students in the study sample to participate in the types of career awareness and work-based learning activities that are seen as basic to the Academy approach. In order to ascertain the effect of this "basic" version of the Career Academy approach, Chapter 3 examines the rates and intensity with which Academy students across the sites actually participated in these types of activities. It then compares the experiences of Academy students with those of non-Academy students, some of whom may have participated in similar activities through other programs or classes.

In summary, as a group, the participating sites represent relatively mature versions of the employer partnerships and other work-related dimensions of the Career Academy approach. By contrast, during the site selection process and ongoing data collection for this study, MDRC encountered numerous "career academies" in which employer involvement was either minimal or targeted to specific, short-term activities or program needs. Typically, these programs were in their initial stages of development or were unable to commit sufficient staff time or resources to identifying employer partners and developing meaningful and sustained roles for them. The relative maturity of the sites chosen for this evaluation provides a solid foundation for examining the effects that the Career Academy approach in general may have on opportunities for students to participate in a variety of work-related activities aimed at enhancing their education and employment prospects.

II. Variations in the Career Academies' Employer Partnerships and Work-Related Activities for Students

While they each exhibited versions of the basic work-related dimensions of the Career Academy approach, the participating sites as a group did not necessarily reflect the fully realized employer partnerships that may be envisioned in the ideal Career Academy model. Rather, they represented a broad range of strategies for supporting their employer partnerships and for building on the partnerships to develop new learning opportunities for their students. The variations among the participating Career Academies reflected the inevitability of having to adapt the core dimensions of the Academy approach to local needs, capacities, and circumstances, as well as some of the challenges of maintaining this and other programmatic elements over time.

This section of the chapter provides a more detailed description of the Academy program dimensions as they were implemented in the participating sites. It provides examples of some program characteristics and practices that were fairly typical among many of the sites. It also provides examples that illustrate the high degree of variation among the sites. The section is divided into two parts. Part A focuses on the two core dimensions of the employer partnerships: the roles employers play in the sites and the strategies Academies have developed to coordinate the various activities and support that the employers provide. Part B describes the various career awareness and work-based learning activities that sites have developed for students.

With respect to the different approaches sites used to sustain employer partnerships, three groups of sites emerged. Overall, four out of the 10 sites developed what can be called highly structured approaches to sustaining their employer partnerships. A second group of four sites had many of the same elements in place as those sites with the highly structured approach but differed from the first group in the frequency and intensity of academy and employer partner meetings, as well as in the level of involvement of employer partners in the management of the academy programs. A third group, the two remaining sites, did not have established employer advisory boards, yet they were still able to sponsor career awareness and work-based learning activities for their students, primarily through alternative arrangements that were different from the other sites and from each other.

A. Characteristics of the Employer Partnerships

1. Partnerships' Structures and Multiple Roles for Employers. Table 2.1 lists a number of key characteristics of the employer partnerships established by the Career Academies participating in the study.[2] The first part of the table lists the various roles employers played in

---

[2] Note that the two Electronics Academies in the study are located in the same school district and are part of the same employer partnership. To reduce redundancy, Tables 2.1, 2.2 and 2.3 list these two Academies in one column.

Table 2.1

Career Academies Evaluation

Selected Characteristics of Career Academy Employer Partnerships

Characteristic	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academies (I, SC)[a] San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, DC	Watsonville Video Academy Watsonville, CA
Key employer roles									
Employer partners were some of the principal initiators of the program	no	yes	yes	yes	no	no	no	yes	yes
Management or advisory roles:									
Curriculum development	yes	yes	yes	yes	yes	yes	yes	yes	yes
Financial management[b]	yes	yes	yes	no	yes	no	no	yes	no
Strategic planning	no	yes	yes	no	yes	no	no	yes	yes
Recruiting other employers	no	yes	yes	yes	yes	no	no	no	no
Employers required to provide in-kind or direct financial support	no[c]	yes	yes	no	yes	yes	no	no	yes
Other employer partnership characteristics									
Year in which employer partnership was formed	1993	1989	1991	1984	1984	1991	1991	1989	1991
Total number of participating employers[d]	5	60	27	10-12	15	10-13	3-8	5	20
Number of Career Academies in the partnership	1	3	3	1	3	1	1	1	1

(continued)

Table 2.1 (continued)

Characteristic	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academies (I, SC)[a] San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, DC	Watsonville Video Academy Watsonville, CA
Other employer partnership characteristics (continued)									
Has Employer Advisory Board or Steering Committee	yes	yes	yes	yes	yes	no	no	yes	yes
Frequency of Employer Advisory Board meetings	annually	quarterly	quarterly	quarterly	quarterly	n/a	n/a	monthly	quarterly
Status of employer partnership as of 1997-98 school year	Program disbanded at end of 1996-97 school year	Stable core group of employers	Stable core group of employers	Business Advisory Board stopped meeting at end of 1996-97 school year[e]	Stable core group of employers[f]	Changing involvement from employers	Stable core group of employers	Changing involvement from employers	Stable core group of employers

SOURCE: MDRC field research.

NOTES: Unless otherwise indicated, the information in this table pertains to the 1996-97 school year.

[a] The Electronics Academies at Independence and Silver Creek are located in the same school district and are part of the same employer partnership. To reduce redundancy, these two Academies have been listed in one column.

[b] This role includes providing input on budgeting and allocating resources provided by the state, district, or employers.

[c] Although not required to do so, some employer partners at the Academy for Aerospace Technology provide in-kind or direct financial support.

[d] This number includes all employers who served on advisory committees, provided work-based learning slots, served as a source of adult mentors for students, or provided financial or in-kind support.

[e] The industry at Business and Finance Academy was reorganized and the Employer Advisory Board involuntarily disbanded.

[f] Employers rotated serving on the operating committee of the Employer Advisory Board.

the sites. The second part shows characteristics associated with the scale and management of the partnerships.

As was noted earlier, the employer partnerships in each of the sites were the result of ongoing coordinated efforts to engage local employers in supporting the Academy programs and sponsoring a range of work- and career-related activities for students. The first part of Table 2.1 indicates that, in all the sites, the employer partners played a variety of roles and provided support for a number of student activities.

It is interesting to note that in five of the sites, one or more of the employer partners played a key role in the initiation of the Career Academy programs. In these five sites, at least in the early stages of the Academy's development, teachers and employers collaborated to create a common vision for the program, and the employers made considerable financial contributions. In other sites, the Academy programs existed already; the employer partnerships were formed later, and employers were added as the program gained momentum and became an established entity within the high school. In general, however, employer partnerships in each of the sites had been sustained for several years. As of the 1996-97 school year, the employer partnerships had existed for a minimum of four years and for up to 13 years in the case of the Pittsburgh Public Schools and the East Side Union School District.

In general, interviews with several of the particularly highly engaged employer partners from across the sites revealed high levels of interest in the Career Academies and a commitment to helping the programs serve their students well. For example, one employer expressed pride in the fact that the employer partners were able to provide mentors and internships to students and felt that they were making a contribution to workforce development. Another employer representative highlighted the importance of helping the Academy staff apply management techniques to the education process. Another focused on the goal of increasing the number of companies involved with the Academy and expanding the base of financial support for the program. One of the employer representatives envisioned an even broader role for the employer partners in helping improve the academic achievement of Academy students.

The second section of Table 2.1 lists characteristics associated with the scope and management of the sites' employer partnerships. A key issue for many Academies, and for other school-to-work initiatives, concerns the number of employers they are able to attract and keep engaged. Among the sites in the study, the number of employer partners ranged from 3 to 60. Some sites attracted a large group of employers in order to ensure an adequate number of work-based learning placements and other activities for their students. At the same time, sites with a larger number of employers faced the challenge of keeping their employer partners engaged and ensuring consistency in the various employer-sponsored activities. On the other hand, some of the sites with relatively few employer partners were able to cultivate much heavier involvement from each employer in the way of a larger number of work-based learning placements and more intensive commitments of in-kind support.

Although there was considerable variation among the 10 sites in the study, three groups of sites illustrate some of the differences in the way that the sites managed and sustained their employer partnerships. Most of the differences were tied to the characteristics listed in the second part of Table 2.1.

One group of sites included the two Electronics Academies in San Jose, the Academy of Finance in Baltimore, and the Academy of Travel and Tourism in Miami Beach. In general, each of these sites had developed what might be characterized as highly structured approaches to sustaining their employer partnerships. Each of these sites had engaged a relatively large number of employers who were affiliated with a consortium of Academies. Each of the employer partners was required to provide a certain level of financial or in-kind support. For example, the state provided annual funding for the Electronics Academies that the employer partners (as well as the school district) were required to match, either through a direct financial contribution or through in-kind support such as staff time or paid work experiences for students. In the case of both the Academy of Finance and the Academy of Travel and Tourism, the employer partners were asked to make a financial contribution to the program, part of which was used to pay the salary of the coordinator. The types of management roles at these Academies encompassed the first three areas identified on the table: financial assistance and contributions, consultation on curricular matters, and involvement in Academy planning and budget.

These four sites had established formal advisory boards that played a role in managing the Academies, and their boards met regularly to coordinate their support for the programs. Membership on these boards typically included several employer representatives, the Academy coordinator or lead teachers, and a representative from the school district. The boards at these sites also included student representatives, parent representatives, and a teacher or administrator from the high school in which the Academy is located.

In general, the advisory boards provided a formal mechanism for the employer partners to communicate with each other and to provide input on Academy activities or operational issues. They also provided an opportunity for the Academy staff and students to build support for their programs and to develop a shared vision and expectations for the program and for the employer partnership. The profile of the Electronics Academies' employer partnership (see Box 1) illustrates several of the characteristics that these sites shared in sustaining their formal employer partnership.

A second group of sites included the Academy for Aerospace Technology in Cocoa, the Business and Finance Academy in Pittsburgh, the Public Service Academy in Washington, D.C., and the Video Academy in Watsonville. The first part of Table 2.1 shows that these sites were similar to those in the first group in that the employer partners played a variety of roles in the Academies and provided support in a number of different areas. Like the sites in the first group discussed, these sites had also established employer advisory boards, but they differed from the first group in that their employer advisory boards met less frequently or tended to be less involved with the Career Academies in management and operational issues.

The experience of the Business and Finance Academy in Pittsburgh highlights some of the key challenges the Career Academies faced in their efforts to sustain their employer partnerships. In this case, the program was unable to meet these challenges; the partnership was reconstituted and eventually was disbanded involuntarily for a variety of reasons including a downturn in the banking industry. The Academy's Employer Advisory Board met independently from Academy staff members, in large part because of scheduling conflicts. Typically, the demands of the organizations and the employer representatives involved with the Academy prevented the employer partners from being able to schedule meeting times that were convenient for the Academy's teaching staff. According to Academy staff, this problem led to a breakdown in communication and prevented the key stakeholders from developing a shared vision for the program and the partnership. In 1996, a member of the Advisory Board led an effort to reconstruct and reconfigure the board in order to establish a core group of four employer partners from a wide variety of businesses and financial institutions. The reconstituted board was to be responsible for recruiting additional employer partners in order to revitalize the partnership with the Academy. It was decided that the Academy and the Employer Advisory Board would meet together on a monthly basis at a mutually convenient time. Unfortunately, this did not happen. The Board lost momentum and eventually stopped meeting altogether.

BOX 1

The East Side San Jose Electronics Academy Employer Partnership

Establishing Formal Partnerships and Multiple Roles for Employers

The East Side Union School District operated three Electronics Academies as part of the California Partnership Academy network. During the 1996-97 school year, it had engaged a total of 15 employer partners. The employer partnership was coordinated through an Employer Advisory Board. The work of the Board was conducted primarily through its Operating Committee, which consisted of representatives from a core group of six employer partners, one of whom served as chairperson. The Operating Committee also included the district's Electronics Academies Industry Liaison, the lead teachers from each of the three Electronics Academies, student representatives from the three Academies, the principal from each high school, the Director of Career Education for the district, and the district's school superintendent. Within the Operating Committee, which met quarterly, subcommittees were formed to delegate responsibilities in such areas as special events, identifying new industry partners, and curriculum.

An important purpose of the Operating Committee was to bring a more business-like approach not only to the Employer Advisory Board but to the operations of the Academy. The Operating Committee oversaw the long-term planning process for all three academies and helped the academies to identify clear goals for their programs. As an outgrowth of this process, each participating employer was responsible for recruiting one reliable new employer partner by the end of the 1996-97 academic year. The employers were also asked to develop a strategic plan to achieve the goals the Committee proposed. They then established action plans for fulfilling those goals and created an Academy budget/financial plan.

The employer partners in East Side also helped to preserve a key feature of the Electronics Academies. For example, the Electronics Academies received funding from the district to provide their teachers with an additional planning period each day. The district was proposing to eliminate the additional shared planning period for Academy teachers as a cost-cutting measure. One of the employer representatives made a benefit/cost presentation to district officials and was able to convince them to preserve this aspect of the program for teachers.

In short, a key challenge in sustaining employer partnerships is to find times for meetings that accommodate both employers' and educators' schedules. While this may appear to be a fairly straightforward logistical issue, the Business and Finance Academy's experience underscores the need for employer partners and Academy staff to meet and communicate on a regular basis. This is one concrete way to solidify employer commitment and to help shape a common vision for the Academy.

The two remaining sites, the Global Business Academy in Santa Ana and the Health Professions Academy in Socorro, had never established an employer advisory board. Yet both of these sites managed to engage a group of employers to support their programs and sponsor career awareness and work-based learning activities for their students. The Global Business Academy provided more sporadic and less intense work-based learning opportunities for its students and suffered a number of programmatic setbacks in this area during the 1996-97 academic year. In the case of the Health Professions Academy, strong employer commitment to the programs was facilitated by a strong program coordinator (discussed in the next section of the chapter) and by the fact that partnership was primarily limited to three employers (although the number eventually grew to include five additional employers). Each employer partner, however, provided a high number of work-based learning placements for the Academy students, so this Academy was able to rely more heavily on fewer employer partners to cover all their needs for work-based learning experiences for its students. While this arrangement worked well for the Health Professions Academy, other sites had to engage a larger number of employers to provide an adequate number of work-based learning placements and other activities for their students. Also, in the absence of an advisory board, the Health Professions Academy established an organization to sponsor program activities and to generate interest and visibility for the program. This group is described in more detail in Box 2.

Box 2

The Health Professions Academy

Supplementing the Employer Partnership with Professional and Parental Involvement

The Health Professions Academy did not have an official employer advisory board. However, the program had a long history of formal relationships with its principal employer partners — the hospitals that consistently provided students with work-based learning experiences. In 1995, the Health Professions Academy decided to form what they called the Association of Students and Parents/Professionals (ASAP) to highlight the work of the Health Professions Academy, meet alumni and teachers from the Academy, and hear guest speakers on topics related to the health professions field. The formation of this group is an example of an innovative way to keep the momentum of the Academy up and simultaneously develop a higher profile in the Socorro High School community at very little cost to the Academy itself.

2. The Employer Liaison and Coordinator. In addition to the administrators who coordinated the formal relationships with employers, Career Academies also relied on a person or group of people who served as liaisons between the programs and the employer partners and who were responsible for developing and coordinating the various employer-sponsored activities for students. Table 2.2 lists several characteristics of the coordinator role. The table highlights two basic approaches that the sites have used to fill this role. One group of sites relied on Academy teachers to serve as the primary liaison with the employers and to coordinate the various employer-sponsored activities. A second group of sites had the resources available to employ non-teaching personnel to act as the primary employer liaisons and coordinators. The differences in these two arrangements have to do with the differences in the amount of time and effort that a non-teaching person and an academy lead teacher can put into coordinating employer-sponsored activities and sustaining employer partnerships.

The first group of sites included the Academy for Aerospace Technology in Cocoa, the Business and Finance Academy in Pittsburgh, the Global Business Academy in Santa Ana, the Health Professions Academy in Socorro, and the Video Academy in Watsonville. As Table 2.2 shows, these five sites relied on Career Academy teachers to serve as the primary liaisons with the employer partners and as the primary coordinators for employer-sponsored activities. In each of these sites, the Academy lead teachers also had classroom teaching responsibilities as well as responsibilities for other Academy activities such as student recruitment, coordinating teacher activities, and serving as a liaison with the building and district administration. In an effort to

Table 2.2

Career Academies Evaluation

Selected Characteristics of Career Academy Employer Partnership Liaisons and Coordinators

Characteristic	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academies (I, SC)[a] San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, DC	Watsonville Video Academy Watsonville, CA
Primary employer liaison/coordinator	Academy lead teacher	Non-teaching district-level staff person	Non-teaching district-level staff person	Academy lead teacher	Non-teaching district-level staff person	Academy lead teacher	Academy lead teacher	Consultant	Two Academy lead teachers
Other responsibilities of primary employer liaison/coordinator[b]	Full teaching load; Academy director	Employer coordinator for multiple Academies	Employer coordinator for multiple Academies	Reduced teaching load; Academy director	Employer coordinator for multiple Academies	Slightly reduced teaching load; Academy director	Reduced teaching load; Academy co-director	Consultant on local/national Career Academy program development	Academy co-directors, one of whom has a reduced teaching load
Other staff who have substantial responsibilities for employer-related activities[c]	--	Academy lead teacher; Academy teacher	Academy lead teacher; Academy teachers	--	Academy lead teacher	--	Academy lead teacher	Executive-on-loan	Academy lead teacher
Employer-based coordinator	no	yes	yes	no	yes	no	yes	no	no

SOURCE: MDRC field research.

NOTES: Unless otherwise indicated, the information in this table pertains to the 1996-97 school year.

[a] The Electronics Academies at Independence and Silver Creek are located in the same school district and are part of the same employer partnership. To reduce redundancy, these two Academies have been listed in one column.

[b] Responsibilities included are beyond those associated with being the employer liaison or coordinator.

[c] Included are those persons who play a key role in assisting the primary employer liaison/coordinator. In addition, Academy teachers in each of the sites provide assistance on all aspects of the Academy programs, including activities related to the employer partnerships.

provide the lead teachers with some additional time to fulfill these roles, four of the sites provided additional funding to reduce their teaching load (usually from five classes to three or four classes). Other than their Academy teaching colleagues, who provided general support, no one else in these sites played a key role in coordinating the employer-sponsored activities.

The Watsonville Video Academy, described in Box 3, illustrates how Academies rely on Academy-based teaching staff to serve as the liaison with the employer partners and to coordinate the employer-sponsored activities.

BOX 3

The Watsonville Video Academy

Academy-Based Employer Liaisons and Coordinators

In the Watsonville Video Academy, the principal coordinating duties for student work experiences and liaison work with the employer partners were centralized in the two co-lead teacher positions in the Academy. These teachers were jointly responsible for recruiting and maintaining contact with employer partners in the community. The one lead teacher with the reduced class schedule was responsible for monitoring the student work experiences, collecting the student evaluation forms that the program asked employers to fill out, and providing feedback to students in addition to giving students an opportunity to discuss their work experiences. This same lead teacher also took on the role of work experience coordinator, making sure that students were in the right placements, visiting the work sites, doing the paperwork so students got paid by Job Training Partnership Act (JTPA) funds, and finding out about the learning opportunities students had on the job. The other lead teacher was often responsible for doing community outreach work in the hope that the program could expand to provide more students with work experiences outside the Academy on a more consistent basis.

Since the Watsonville community is relatively small, the Academy had to work within the limitations placed upon them by the fact that the occupational theme of the Academy was not immediately applicable to the kinds of industries prevalent in this rural/agricultural part of California. The co-lead teachers had to be creative in their use of resources and industry connections to make up for the lack of economic base and employer partner options in the video and computer fields. By being responsive to the needs of employers in the local community, however, the Academy was able to secure work assignments for students. Adapting to the local economic circumstances was one of the ways that this program was able to maintain partnerships with employers and create work experiences for students in the absence of a large employer base from which to draw. Dividing the tasks associated with Academy-based coordination of employer involvement was an arrangement that had worked thus far in Watsonville, perhaps in part because of the particular circumstances of the Academy.

The other five sites in the study, as Table 2.2 indicates, used non-teaching staff as the primary employer liaison and coordinator for employer-sponsored activities. These sites included the Academy of Finance in Baltimore, the Academy of Travel and Tourism in Miami Beach, the two Electronics Academies in East Side, and the Public Service Academy in Washington, D.C. In each of these sites, Academies, employer partners, and school districts were able to secure enough funding to support a full-time person whose primary responsibility was to coordinate the employer partnerships and employer-sponsored activities. In these same five sites, this person served as the coordinator for several Academies. In three of these sites, the Academy lead teacher also played a key role in working with the employer partners and coordinating the employer-sponsored activities. The Academy of Finance, described in Box 4, provides an example of this type of coordination arrangement.

Box 4

The Academy of Finance

Non-Teaching Employer Liaison and Coordinator

The Academy of Finance in Baltimore, Maryland has a non-teacher staff member who is in charge of coordinating the shadowing, mentoring, and internship placements for two Academies at Lake Clifton–Eastern High School in Baltimore City and one county Academy program. The Director of Baltimore Academies position is paid in part by the Employer Advisory Board and in part by the Baltimore City school system. The Director in Baltimore is given office space at Lake Clifton–Eastern High School, although she is not considered a Lake Clifton employee.

The director had prior experience in the financial industry and used her business and management skills in her position as the contact between employer partners and the three academies with which they worked. With no teaching responsibilities, she had a more flexible schedule to accommodate meetings with employer advisory group members, Academy budget meetings with employer partners, and fundraising activities. She was also able to attend to other administrative work out in the field to make sure the career awareness and development opportunities and work-based learning activities ran smoothly over the course of the year. The position was a 12-month administrative position, so unlike many teachers, the director worked during the summer. The director was in charge of matching students to mentors and internships, monitoring student internships throughout the summer months, and recruiting new employer partners. She also provided training for employer-based mentoring and internship coordinators as part of a formal orientation program the Academy had developed.

By having a coordinator with prior experience in business and industry, this site had the benefit of her management skills to provide a high level of oversight and quality control to the employer partnership. She also had the time and more flexible schedule to attend to the responsibilities. This site was able not only to sustain its existing Academy and employer partnerships but also to initiate the development of new Academies and an expansion in the number of employers in the partnership.

Like the Academy of Finance, the Academy of Travel and Tourism and the Electronics Academies each relied on a district-level administrator who served as the employer liaison and coordinated the work-based learning internships for the Academy programs. In this more centralized arrangement, the coordinators at the district kept a file of all the job descriptions that came in from employers for summer internships. The students were then supervised and monitored throughout the summer by an Academy staff member, who checked in on students on the job and intervened if any problems arose, as well as conducting student evaluations. Having a non-teaching staff member in charge of working with employer partners appeared to facilitate strong and lasting ties with business partners.

It is interesting to note that the Academy of Finance and the Academy of Travel and Tourism are part of the National Academy Foundation (NAF) network. Although there is a great deal of variation among NAF Academies nationwide, the NAF network has attempted to set standards and guidelines for some of the basic elements of their Academies. In particular, NAF places a great deal of emphasis on employer involvement, and many of its sites have established non-teaching coordinator roles like those for the Academy of Finance and the Academy of Travel and Tourism. While it has been possible with many of the NAF sites, however, resource constraints make this type of position beyond the means of some programs. NAF also provides its programs with specific instructions on how to create structures that will enable the programs to enjoy longstanding relationships with employers. The materials include internship guides, a Director's Manual, and a curriculum for all NAF-created courses, with daily lesson plans, that help teachers organize their classroom time around a set of learning objectives.

Finally, Table 2.2 shows that employer partners in five of these sites (the Academy of Finance, the Academy of Travel and Tourism, the two Electronics Academies, and the Health Professions Academy) had taken the initiative to provide additional support for coordinating Academy activities in which they were involved. Employers in these and other sites noted that many high school students needed to learn about the norms of the workplace, appropriate dress, and professional behavior from the employer's standpoint. They also pointed out that few adults in the workplace have experience supervising high school students in work-based learning activities. In response to this need, employers in the five sites listed above designated someone on their staff to serve as an employer-based coordinator for Academy-related activities. This person served as a primary liaison whom other employees, as well as Academy or district staff, could contact in matters related to the employer's role in the work-based learning experiences and other work-related activities. These employer-based coordinators provided orientations for their fellow employees who served as mentors or supervised students in their work-based learning internships. The coordinators also took a lead role in providing students with a general orientation to the company or organization and its norms for doing business.

In general, the five Academies that had the benefit of an employer-based coordinator appeared to have established particularly strong relationships with their employer partners. They also developed a fairly intensive approach to orienting students and their job supervisors to the content and expectations of the work-based learning activities. Interestingly, four of these Academies also relied on non-teaching staff who were primarily responsible for overall employer coordination. This appears to have resulted in a highly structured approach to developing work-related activities for students and to monitoring students' and employers' participation in them. The combination of an employer-based coordinator, a non-teaching coordinator, and involvement of teachers (which exists in all the sites) can create a context in which the multiple perspectives on employer involvement can be mutually reinforcing. It can also promote efficient use of the unique contributions of the key members of the partnership.

B. Activities and Learning Opportunities for Students That Develop from the Employer Partnerships

An objective of the Career Academy approach is to expose students to a sequence of experiences both inside and outside of school that relate to the Academy's occupational theme and to give them the opportunity to apply what they have learned in a professional atmosphere. Employer partnerships serve as the foundation on which to build a range of career awareness and development activities and to create intensive work-based learning activities. Across all 10 Academies, students engaged in a variety of career awareness and development activities, as well as in work-based learning experiences. At the site level, there is variation across programs in terms of the depth and intensity of these activities. This section of the chapter describes the strategies the sites used to implement these activities and enhance their quality.

1. Career Awareness and Development Activities. Table 2.3 lists the various career awareness and development activities that were offered in the 10 Career Academies in the study and indicates the grade level during which students typically participated in them. The table shows that each of the participating Career Academies offered several types of career awareness and development activities, both in school and outside of school. It also shows that each of the Academies had some type of activity during each year that students were in the programs.

Table 2.3

Career Academies Evaluation

Career Awareness and Development Activities

Characteristic	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academies (I, SC)[a] San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, DC	Watsonville Video Academy Watsonville, CA
School-based career awareness and development activities									
Career-related guest speakers or presentations	9th-12th grades	9th-12th grades	10th-12th grades	10th-12th grades	10th-12th grades	10th-12th grades	9th-10th grades	10th-12th grades	10th-12th grades
Individual or group career counseling[b]	9th-12th grades	9th-12th grades	10th-12th grades	10th-12th grades	10th-12th grades	10th-12th grades	9th-12th grades	10th-12th grades	10th-12th grades
Career fair[c]	--	9th-12th grades	10th-12th grades	10th-12th grades	10th-12th grades	10th-12th grades	9th-12th grades	10th-12th grades	--
Career interest inventory[d]	10-12th grades	11th-12th grades	11th-12th grades	10th grade	--	--	--	11th grade	--
Job search assistance	11th-12th grades	11th-12th grades	11th-12th grades	--	11th-12th grades	11-12th grades	11th-12th grades	11th-12th grades	11th-12th grades
Career-related student organization	--	Junior Achievement, FBLA[e]	DECA,[f] FBLA	DECA, Academy- and community-sponsored activities	--	FBLA, DECA, Junior Achievement	Health Occupations Student Association	--	Academy- and community-sponsored activities

(continued)

Table 2.3 (continued)

Characteristic	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academies (I, SC)[a] San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, DC	Watsonville Video Academy Watsonville, CA
Employer-based career awareness and development activities									
Field trips[g]	9th grade	10th grade	10th-11th grades	10th-12th grades	10th grade	10th-12th grades	10th grade	10th grade	10th grade
Job shadowing[h]	10th grade	10th grade	11th grade	11th grade	11th grade	11th grade	11th grade	11th grade	11th-12th grades
Mentoring[i]	10th-12th grades	11th grade	--	--	11th-12th grades	--	11th grade	11th-12th grades	11th-12th grades
Academy-sponsored special events	Internship Recognition Event	Annual Awards Presentation; Employer Recognition Luncheon	Annual Awards Presentation; Employer Recognition Luncheon	Career Day/ Employer Recognition Ceremony	Partnership Celebration Breakfast	Annual Employer Recognition Activity	Annual Awards Presentation	Annual Academy Student Activity	Academy- and community-sponsored events

SOURCE: MDRC field research.

NOTES: Unless otherwise indicated, the information in this table pertains to the 1996-97 school year.

Double dashes (--) indicate that the Academy does not provide this activity or resource.

[a] The Electronics Academies at Independence and Silver Creek are located in the same school district and are part of the same employer partnership. To reduce redundancy, these two Academies have been listed in one column.

[b] Planned or formal discussions between students and a career advisor or counselor.

[c] Assemblies or special events in which several employer representatives present information about their businesses or industry and about the career opportunities that are available. In some cases, career fairs take place outside the school.

[d] Formal assessment of student career or job interests and discussions with students about the results of the assessment.

[e] Future Business Leaders of America.

[f] The DECA (Distributive Education Clubs of America) chapter at the Academy of Travel and Tourism began in 1997.

[g] Planned visits to workplaces are intended to introduce students to the business or industry and the career opportunities available.

[h] Planned activities in which students accompany an adult through the adult's work day.

[i] Mentoring is a formal arrangement in which students are paired with an adult and are expected to meet regularly either formally or informally.

Some of the activities were typically offered in school, during the school day. Guest speakers were invited to describe their business or industry, the work they did, and how they found and obtained their jobs. Many of the sites had developed activities or projects in which students conducted mock interviews, created résumés and cover letters, wrote thank-you letters, and made business-like presentations in class. Some of these activities were part of regular academic or vocational classes, while others were supplementary and took place during free periods or after school.

A number of the sites organized career fairs in which several of the employer partners (and in some cases other employers in the area) came together to provide information about their companies and the types of career opportunities they offered. The East Side Electronics Academies held a Career Fair every March, hosted at the corporate facilities of one of the Academies' employer partners. It was a half-day event that served to provide all Academy students with an opportunity to interact with a variety of employers and obtain information on different career areas. Employers from the area were invited to attend and set up booths and give students mock interviews. In 1997, over 150 employers in Silicon Valley attended this event. The Career Fair was attended by all Academy students, but in particular it helped to prepare 11th-grade students who would be interviewing for summer jobs later in the year. Academy employer partners, teachers, and former graduates spoke at the event.

Career-related student organizations were another way in which Academy students could participate in career-oriented activities within the broader community at the high schools. The Future Business Leaders of America (FBLA) had chapters at Miami Beach High School (see Box 5) Lake Clifton–Eastern High School, and Valley High School, which included Academy students in their membership. Socorro High School had the Health Occupations Student Association, whose membership was made up of many Health Professions Academy students as well as other students in the high school. The Video Academy students in Watsonville participated in video- and technology-related activities through the assignment of responsibilities at the Mello Center, a performing arts center/auditorium that is housed at the school and used for both school and community functions.

Other career awareness and development activities are provided outside of school, usually in a work setting. One such activity is job shadowing, when students accompany employees through their work day on the job and employers provide career exposure to give students insight into what goes on in the workplace. In another outside activity, mentors are assigned to students, with whom they have periodic contact over the course of the school year. While some programs have been successful with the mentoring component and have orientation sessions for mentors, other sites have encountered some difficulty in keeping momentum up. Interviews with employers and students revealed that both students and employers felt that the mentor activities needed to be more structured and well planned. Both parties felt that they would benefit from being provided some guidelines for what to expect as a mentor or a student being mentored, as well as some examples of activities that might be interesting to pursue when a teenager is paired with an adult.

Many of the Academies offered a sequence of career awareness and development activities leading up to a more intensive and formal work-based learning assignment that occurred after the 11th grade. In other Academies, the career awareness and development activities were offered more as independent activities that were not necessarily linked directly to the work-based learning activities. In either case, the purpose of the career awareness activities was usually to introduce students to a variety of careers within and outside the Academy theme. They also provided information about the work performed in those career areas and about the qualifications and skills that are typically required to enter those jobs. These activities also provide students with information about more generic employability skills.

BOX 5

The Academy of Travel and Tourism

Career-Related Student Organizations

The Academy of Travel and Tourism in Miami Beach had chapters of both Future Business Leaders of America (FBLA) and the Distributive Education Club of America (DECA). Both clubs fostered the entrepreneurial spirit of the student body. Many Academy students were members of one or both school-sponsored clubs and used the clubs as an extension of the career awareness and development focus they brought from the Academy. DECA and FBLA often had competitions in which students designed projects or products and made presentations, competing against other high schools. It was not uncommon for some Academy students to compete on an annual basis in club-sponsored competitions. This is one example of how school-sponsored organizations can encompass some of the interests of Academy students.

The description of the Public Service Academy in Box 6 illustrates how Academies attempt to offer a sequence of career awareness activities that culminate in a capstone work-based learning internship.

Other sites offered similar activities or a sequence of activities designed to prepare students for a work-based learning experience. For example, the Electronics Academies at Silver Creek and Independence High Schools provided an Exploratory Work Experience for students who were eligible to participate in work-based learning internships. These Academies also prepared an annual Career Fair. The Health Professions Academy prepared students for clinical hospital rotations with a three-week series of field trips and learning opportunities to familiarize students with the kinds of situations they would encounter in the hospitals and the skills required in the health professions.

2. Work-Based Learning Activities. Work-based learning has been defined broadly as a planned program of work experience linked to school. The program usually includes some form of on-the-job training, ongoing contact with industry professionals, and exposure to skills needed in the workplace. A key objective of work-based learning is to create a learning experience that draws on the classroom, the workplace, and the occupational theme of the Academy. According to interviews with some employer partners and Academy staff members, there is an expectation among employers that students will be ready to learn on the job and an expectation among Academy staff members that students will be provided with learning opportunities. An area that appears to need further definition and standardization is the content of the learning experiences available to students. Interviews with employers and students revealed that investigative and analytical skills were required in some work-based learning experiences, as well as data entry and more general office skills. Some of the employer partners would also like to see educational progress and increased student achievement over the course of students' engagement in career development and work-based learning activities.

Table 2.4 lists several characteristics of the work-based learning activities that were offered in the participating sites during the 1996-97 school year. Overall, the table shows that each of the 10 Career Academies in this study provided work-based learning opportunities for their students. Most of the Career Academies offered their work-based learning activities during the summer between the 11th and 12th grades. Some programs provided work-based learning opportunities throughout the school year, and others allowed students to continue their summer internships into their 12th-grade year. With the exception of the Global Business Academy, each of the Academies conducted some type of assessment of student performance in the work-based learning activities. Also, many of the sites supported their work-based learning activities with orientations for their students and employer supervisors and with classroom-based activities or projects.

Box 6

The Public Service Academy

Providing A Sequence of Career Exploration, Job Shadowing, and Mentored Internships

The Public Service Academy offered two principal career awareness and development activities that led up to student internships (which are referred to as "mentoring"). The first activity was referred to as "Insights" and was designed to provide 10th-grade Academy students with exposure to the workplace through a series of field trips to various government offices and divisions of the federal government. These field trips were designed to introduce students to the world of public service professions in the nation's capital. The focus of Insights was on introducing students to both specific and general employability skills, including skills needed for various government jobs, the roles and responsibilities of the various federal agencies, and the types of work different public service employees perform in their agencies.

A second activity, called "Shadows," occurred during the 11th grade. Here, an Academy student accompanied an adult to the adult's job in a federal agency in which the student had expressed some interest. The goal was to expose students further to the career options available in public service. If a student successfully completed the Shadows component in the 11th grade, she or he was eligible for a summer internship placement in a participating agency. When students reached the 12th grade and had completed all the credits they needed to graduate, they were assigned to the "Mentor" program, in which they were placed in another internship with an adult mentor who supervised their work. Academy students who were eligible could then go to school for half the day and work the other half of the day at their mentor assignment workplace. In exchange, students were paid a stipend.

The information in Table 2.4 suggests several differences across the sites. For example, the number of work-based learning placements offered ranged from 15 in Independence High School Electronics Academy to 43 in Business and Finance Academy at Westinghouse High School. Also, the table indicates that there was not necessarily a relationship between the number of participating employers and the number of work-based learning placements available to students. For example, the Health Professions Academy relied primarily on three employers to provide over 40 work-based learning placements, while the Electronics Academy at Silver Creek High School had to rely on 15 employers for their placements.

One key factor that is likely to influence students' interest and capacity to participate in the work-based learning activities is whether they are paid. Table 2.4 shows that all 10 of the Academies provided paid internships for students, although the rate of pay varied somewhat. In some sites, students were paid minimum wage or better, while in other sites students were paid a weekly or monthly stipend that usually fell below minimum wage. Sites also drew upon different sources of funding for their paid internships. In some cases, the Academies were able to rely on Job Training Partnership Act (JTPA) Summer Youth Employment funds to help pay students

Table 2.4

Career Academies Evaluation

Characteristics of Work-Based Learning Activities

Characteristic	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academy (I) San Jose, CA	Electronics Academy (SC) San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, DC	Watsonville Video Academy Watsonville, CA
Placement characteristics and selection criteria										
When work-based learning activities typically occur	11th grade, 12th grade	Summer after 11th grade	Summer after 11th grade, 12th grade	Summer after 11th grade	Summer after 11th grade	Summer after 11th grade	Summer after 11th grade	11th grade, 12th grade	Summer after 11th grade, 12th grade	Summer after 11th grade, 12th grade
Total number of work-based learning placements provided	25	27	40	43	15	20	27	40+	17	25
Number of employers providing work-based learning placements	5	20	27	10-12	15	15	10-13	3-8	5	20
Students are paid for work-based learning activities	yes	yes	yes	yes	yes	yes	no	yes	yes	yes
Duration of typical work-based learning activities (weeks)	3	8	6-8	8	8	8	2-3	13+	8-10[a]	6-8
Students receive school credit for work-based learning activities	yes	no[b]	yes	yes[c]	yes	yes	yes	yes	yes	no
Criteria for selection of students for work-based learning positions:										
Minimum GPA of 2.0-2.5	no	yes	yes	yes	yes	yes	no	yes	no	no
No 11th grade class failures	no	yes	yes	yes	yes	yes	no	yes	yes	yes
Attendance[d]	no	yes	yes	yes	yes	yes	no	yes	yes	no
Ability to work with others[e]	yes	yes	yes	yes	yes	yes	no	yes	yes	yes
Displayed interest in career topic[f]	yes	yes	yes	yes	yes	yes	no[g]	yes	yes	no

(continued)

Table 2.4 (continued)

Characteristic	Academy for Aerospace Technology Cocoa, FL	Academy of Finance Baltimore, MD	Academy of Travel and Tourism Miami Beach, FL	Business and Finance Academy Pittsburgh, PA	Electronics Academy (I) San Jose, CA	Electronics Academy (SC) San Jose, CA	Global Business Academy Santa Ana, CA	Health Professions Academy Socorro, TX	Public Service Academy Washington, DC	Watsonville Video Academy Watsonville, CA
Orientation and assessment activities										
Academy provides orientation for students	yes	yes	yes	yes	yes	yes	yes	yes	yes	no
Academy provides orientation for employer supervisors	yes	yes	yes	yes	yes	yes	yes	yes	yes	no
Employers provide orientation for supervisors	no	yes	yes	yes	yes	yes	no	no	no	no
Work-based learning activities have a classroom component	yes	yes	yes	yes	no	no	yes	yes	no	yes
Academy staff conducts evaluation of student work-based performance	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

SOURCE: MDRC field research.

NOTES: Unless otherwise indicated, the data in this table refers to the 1996-97 school year.

[a] Internships are 8 to 10 weeks; 12th grade jobs that take place during school hours are 16 to 20 weeks long.

[b] Work-based learning activities are a requirement of the Academy of Finance; however, students do not receive school credit for these activities.

[c] Credit is given only for work-based learning experiences which are business-related and which take place for a full semester during the school year. If this is the case, students receive 5 credits for each semester of work.

[d] Students must have consistent Academy and high school attendance, determined differently at each Academy.

[e] This judgement is made by Academy staff.

[f] Interest is determined through discussions with Academy staff.

[g] Students in the Global Business Academy who wish to participate in work-based learning activities must meet the Job Training Partnership Act (JTPA) criteria in the summer JTPA program.

who met the guidelines to qualify for those funds. In other sites, students were paid directly by the employers. According to some employer interviews, direct payment of students by employers can aid in making employers more invested or accountable in their role as providers of work-based learning opportunities for students.

The table indicates that most of the Academies considered students' performance and behavior when determining whether they would be eligible or appropriate for the work-based learning placements. In general, most of the Academies required that students have earned enough course credits to be on target for graduation and that they have no failing grades during their 11th-grade year. Some of the sites set minimum attendance rates and grade point averages, while others took into account student behavior and attitudes in deciding which students could participate and which could not. These criteria are important, because they help explain rates of participation in Academy internships. For example, in the East Side Academies, fewer than 50 percent of all Academy students at both sites were eligible to participate in work-based learning. Other reasons not to participate, gathered from student interviews, concerned wages. Some students explained that they could make more money in a job at a department store than in a work-based learning placement — in one example, up to a dollar more an hour. If the pay differential was considerable, some students opted to work elsewhere. In addition, summertime is not the only time that many high school students work, and if Academy students were already working in relatively high-paying jobs throughout the school year, they might report being reluctant to give up those jobs for an Academy-sponsored work-based learning position. To the extent that these considerations have some relationship to how many students participate in the work-based learning component, Academies should be aware of these reasons why students did not take part in the summer internship programs.

Table 2.4 also lists several characteristics that are related to the types of orientation and support that were provided for students and employers as they embarked on their work-based learning experiences. Nine of the 10 Academies provided some type of orientation for both the students and their employer supervisors prior to the start of the work-based learning activities. In five of these sites, the employer partners provided additional orientation for the supervisors.

In one of the sites, several students reported that orientation activities were quite broad in scope, including an introduction to the workplace and general work habits such as promptness, neatness, and presentation skills. In general, students felt that the orientation sessions did not provide good preparation for specific kinds of jobs they would have for their internships. Comments from interviews with students across the sites (Box 7) illustrate further the variation in the way that they perceived their experiences in work-based learning activities. Again, heavy emphasis was placed on students' need to gain work experience and earn money.

Finally, the next to last line in Table 2.4 indicates whether the Academies developed formal strategies connecting the workplace and the classroom. Many Academies strove to establish connections between the occupational theme of the Academy and the work-based learning activities of their students and ultimately to connect the students' summer work-based learning experiences back into Academy classes. Some programs required students to complete projects in their senior year based on the summer work-based learning experiences, providing a loop back to the Academy classroom. Table 2.4 indicates that seven of the participating Career Academies required Academy students to work on projects that connect Academy classes, the occupational themes, and career awareness and development opportunities. For example, as described in Box 8, the Academy for Aerospace Technology used what they call Virtual Learning Activities (VLAs) both to integrate school-based academic and vocational curricula and to bring work-related problems and situations into the classroom.

BOX 7

Perspectives from Career Academy 12th-Grade Students on Work-Based Learning Experiences

The following statements from 12th-grade Career Academy students reveal a great deal of variation both across and within the participating sites in terms of the quality of their work-based learning experiences and the factors that affected their participation and engagement. The first three comments focus on gaining experience on the job and getting paid for this work-based learning experience. The fourth comment focuses on the encouragement a student received from his co-workers in helping him to develop an orientation for the future.

> *I see what my mother does all day working in a factory, and I know that I won't have to do that as a result of being here in the (Academy). It puts me a step ahead of everybody else. My first job experience was in clinical rotations through the Academy, and it has given me a lot of good experience.*
>
> *The internship was a positive experience. I got to work, I got paid, and I got work experience.*
>
> *Getting paid is a big deal with the internship. A lot of us are saving for college, and I have been working since the 10th grade anyway. I have always wanted to have my own money for myself, and I don't want to be a burden to my family. Working is part of life here.*
>
> *In the internships, kids get advice about school. The people I work with encourage me about school and ask things like what are you doing, where are you going.*

Other comments from students are less positive. They focus on how, for some Academy students, the work-based learning experiences did not fulfill their expectations. One comment in particular highlights the repetitive nature of the work the student was assigned on the job. From the field research, we know that some programs are more successful than others in guarding against such experiences by asking their employer partners to attempt to rotate students through departments in their work-based learning experiences, instead of keeping them in one department. From some students' perspectives, it appears that the learning objectives the Academy programs have for the work-based learning experiences might benefit from further clarification.

> *[The internships were] not much to talk about, the jobs are just okay and they are not very exciting, but the job was better than nothing.*
>
> *I was supposed to be doing secretarial work, but what happened was they didn't have enough work for me to do, so they sent me down to another area, and so I was mainly doing more manual labor.*
>
> *I didn't get the job that I worked for; they had only one job left. It didn't require much brain power, just saying the same thing over and over again.*

Interestingly, after a visit to the Academy for Aerospace Technology, staff from the Watsonville Video Academy developed a series of project-based activities called Video Academy Media Projects (or VAMPs) that are based on the VLA model (see Box 9).

Box 8

The Academy for Aerospace Technology

Using Virtual Learning Activities to Connect the Workplace and the Classroom

The Academy for Aerospace Technology designed its entire curriculum around what are called Virtual Learning Activities (VLAs). VLAs are problems that students must collectively work on by drawing on knowledge that cuts across several disciplines. The occupational theme of aerospace technology was present in every aspect of this project-based approach to school work even before students were placed into the program's various levels of internships. Unfortunately, after the 1996-97 school year, this academy program disbanded for various reasons. By design alone, from the start the program was an example of interdisciplinary learning, project-based learning, cooperative learning, and integrated approaches to the occupational theme, because of its emphasis on the VLAs as the vehicle for classroom interactions. However well conceived in terms of the curriculum, the Academy was not able to persevere and no longer exists. The curricular innovations of this Academy are important to remember in thinking about successfully connecting the occupational theme of the Academy to a class or a series of classes.

The Academy of Travel and Tourism used scenarios or dilemmas that students encountered in their summer work experiences as a teaching approach for critical decision making in 11th-grade class discussions geared toward preparing students for their internship experiences. The case studies were used in class discussions, and the Academy invited employer partners to provide additional scenarios or examples they had encountered in their work with students in the workplace. The Academy felt that the case studies gave students a chance to view different perspectives on issues like sexual harassment, inappropriate behavior in the workplace, and prioritizing one's work load on the job. The Academy students were required to hand in weekly assignments to their Academy program site during the summer internship. Half of students' grades were based on their work evaluation, 45 percent on their assignments, and 5 percent on the timeliness of their assignments. The evaluations were passed on to the Academy lead teacher. The work that students did over the summer was linked to a 12th-grade marketing class, in which students had to make presentations based on their summer internships.

In the Health Professions Academy, the occupational theme permeated most Academy classes, and hospital rotations in 11th grade and internships in 12th grade were well integrated into the Academy curriculum. Students were required to interact with patients in many settings and circumstances, to carry out procedures like taking a patient's blood pressure, and to react to medical emergencies calmly.

Interviews with students in the Health Professions Academy revealed that they valued being able to shift career interests as a result of their exposure to the array of options in the health professions they became familiar with through their 11th-grade hospital rotations. Allowing students to shift their career focus or educational aspirations is one outcome that other Academy programs may be striving to achieve through the sequence of career awareness and development opportunities and work-based learning they provided their students. The Health Professions Academy students who participated in the field research reported gaining an increased focus for the future through their hospital rotations and internships, along with a sense of responsibility and preparation for the world of post-secondary education.

BOX 9

The Watsonville Video Academy

Using Video Academy Media Projects (VAMPs) to Connect the Workplace and the Classroom

VAMPs were multimedia projects that involved teams of six students from the three grades in the Video Academy (grades 10-12). An attempt was made in the projects to involve all academic subjects in combination with the occupational themes of video and technology. VAMPs were one way that the Academy tried to use the occupational theme and project-based education to provide work-related learning activities for students, in the face of not being able to provide more extensive work experiences.

In several ways, the program was run more like a school-based enterprise. Academy students produced the school news broadcast each day. They also wrote for and edited the school newspaper as part of an Academy English class. These Academy-based activities were directly linked to the occupational theme of the Video Academy and were more like the work-based learning activities that occurred outside of the Academy classroom at other sites.

Interviews with Video Academy students revealed that they felt that working on the news and the newspaper taught them responsibility, how to plan ahead, how to react quickly, how to cooperate and get along with others, how everyone has strengths and weaknesses, and how to solve problems. As for preparation for the future, Video Academy students reported that they felt they were prepared to work with others, they had acquired considerable computer skills, and they had received valuable on-air experience from their involvement with the Video Academy news broadcasts.

Overall, it appeared to be difficult for Academy programs to link students' work-based learning experiences directly to the academic content areas for the last year of Academy instruction. More often the programs could feed the students' experiences back into the occupational classes with greater ease. In line with a body of literature that tries to identify and pinpoint the academic benefits of work-based learning, each of the participating Academies found it difficult to develop useful work-based learning experiences while infusing them with rigorous academic content and integrating them with classroom-based instruction.

III. Lessons from the Field

Each Academy faced a variety of issues and challenges in creating and sustaining its employer partnerships, as well as other aspects of the Academy approach. Schools are dynamic institutions, and some programs confronted staffing changes at the school building level, as well as Academy-level staffing changes over the course of the evaluation period. One Academy encountered challenges in keeping an occupational teacher in the Academy theme area, while another program had to add staff to the Academy teacher team to help cover Academy teaching assignments. While some programs encountered periods of economic downturn in the occupational theme area that affected the availability of work-based learning opportunities, other programs experienced periods of economic growth leading to an expansion in the availability of work-based learning opportunities along with an increase in employer partners. As was described earlier, one program disbanded, while another program unsuccessfully attempted to rebuild its employer partnerships. All these occurrences speak to the realities of maintaining a level of program activity needed to sustain effective employer partnerships.

Apart from the challenges the programs encountered, the field research revealed several brief lessons that can illuminate some of the broader issues related to sustaining effective employer partnerships in a changing environment. The insights offered by the experiences of the 10 sites in the Career Academies Evaluation may help Academies strengthen employer partnerships as they increase their capacity to provide a broad array of career awareness and work-based learning experiences for students.

- Effective employer partnerships require commitments from Academy staff, in some cases from district-level staff, and at minimum a core group of employers in order to consistently provide Academy students with career awareness and development activities, as well as high quality work-based learning experiences. These commitments include forming and sustaining managing entities for the Academies by establishing Employer Advisory Boards, designating an Academy-based or non-teacher coordinator to be responsible for the sequence of career awareness and work-based learning opportunities, and tracking Academy students' progress through the established sequence of activities particular to each program.

- Coordinating career awareness and development opportunities and work-based learning experiences requires a *considerable* time commitment and a focused effort to build strong ties to the employer community. Whether the program has a non-teacher coordinator responsible for these activities or an Academy-based staff member dedicated to the effort, it is of central importance that the person have enough time to accomplish all the duties associated with sustaining employer partnerships and developing new relationships as the need arises. Of the two employer coordinator arrangements among the programs in this evaluation, having a non-teacher coordinator was determined to be the more desirable option. There is a cost associated with funding such a position, however, which was most often shared by contributions from employer partners and district funding sources. For programs that are exploring ways to solidify their employer partnerships, finding the resources to fund a non-teacher coordinator might be an option to consider.

- Academy partnerships are often viewed by employers as part of a broader corporate effort to bridge the gaps between the business world and the world of high schools. Yet the business world and schools often use different strategies in planning and conducting their work, and different timetables in "getting things done." The employer coordinator is likely to serve as a bridge over this gap and to be responsive to both Academy staff and employer partners.

- In general, the process of helping employers and educators gain a sense of ownership in the Academy should involve the two groups' working together to develop a clear vision and definition of the roles each will fulfill in the partnership. Employer Advisory Boards are likely to play a key role here by providing a forum in which to discuss issues of mutual concern and set forth plans to move beyond discussions and take action.

- It is particularly important to organize preparation activities and materials for all parties involved in providing meaningful work-based learning opportunities for students. This preparation should include well-planned orientations for employers who will be working with students, as well as for teachers and students about their roles and responsibilities in career awareness and work-based learning experiences.

- Ideally, the work-based learning placements themselves should include rotating students through several jobs and departments so that they gain exposure to as many aspects of the industry as possible.

- In order for the employer partnership to become an important part of the educational process, teachers need to envision broader responsibilities for themselves in the Academy program, both inside and outside of the classroom. In addition to being experts in their subject areas or teaching specialties, teachers will need to play a role in helping to shape the application of what they teach in the classroom to the learning opportunities offered to students in the workplace. This process can be facilitated by a series of conversations between employers and teachers about how to expand the learning potential of the out-of-class opportunities provided to Academy students. As a follow-up, a team of Academy teachers might be required to visit a number of employer partner work sites while students are working during the summer. These teachers can report back to the larger team on areas across the curriculum where educators can reinforce or build on the skills students use in the workplace and identify areas where connections to academics can be made.

- Although some Academies have made an effort to connect the work-based learning experiences back to the classroom, the connection is most often made to the occupational classes and not the academic content areas. Further emphasis should be placed on forging connections and enhancing links between work-based learning and the academic skills used in professional environments where students are employed.

- Work-based learning experiences include a broad range of learning opportunities and objectives. A number of student, employer, and teacher interviews revealed an emphasis on social competencies, presentation skills, and expectations of professional behavior in the workplace for Academy students. If this emphasis on professional behavior and social competencies could be combined with an increased focus on connecting academic learning and work-based learning, the experiences of students in the workplace could encompass some broader learning opportunities and objectives.

Chapter 3

Student Participation in Career Awareness and Employment and Work-Based Learning Activities During High School

This chapter examines the extent to which the Career Academy approach provides high school students with stronger and more intensive connections to the world of work. It focuses on several aspects of students' high school experiences that are intended to increase their exposure to career awareness and development activities, their participation in work-based learning opportunities, and their involvement in school-based career awareness and development activities. In particular, the goal of this chapter is to determine the effect of the opportunity to attend a Career Academy on students' work-related and work-based learning experiences during high school. The analysis finds that the opportunity to attend a Career Academy increased students' participation in these activities but that a substantial proportion of students randomly assigned to the program group did not experience key elements of the Academy program.

The chapter also discusses two important factors that are likely to determine the frequency and intensity with which Academy students encounter work-based learning experiences and career awareness and development activities. First, the chapter looks beyond the differences between students who did and students who did not have the opportunity to attend an Academy and focuses on the experiences of those who actually enrolled and remained in the participating programs. Next, the chapter explores the relationship between the quality of student employment experiences and whether or not these experiences are part of a program of work-based learning. Overall, the evidence presented in this chapter suggests that retention in the Academy through the end of high school is strongly related to exposure to the key aspects of the Academy program, and that being employed in a job that is connected to school is strongly related to the quality of the work experience. Nevertheless, a substantial percentage of students who remain in the program until the end of high school do not participate in key aspects of the program.

The findings in this chapter reflect differences between students in the Academy and non-Academy groups aggregated across the 10 participating sites. They build on a central theme in Chapter 2, that each of the 10 participating sites had implemented the core program components that define a Career Academy and are designed to create stronger linkages between the high school and the local employer community. These commonalities provide the opportunity in this chapter to look across the sites at the experiences of the entire Academy group and to provide some insight into the effectiveness of the Career Academy approach in general. At the same time, however, these aggregate findings may mask important differences that are associated with the variation in implementation strategies and program features discussed in Chapter 2. Future reports will examine this variation in more detail.

The Findings in Brief

The analyses in this chapter are based on the responses of 1,585 study sample members to survey questions regarding their school and work experiences through the end of their 12th-grade year in high school. It compares the responses of 868 students who were selected at random to have the opportunity to attend a Career Academy (the Academy group) with those of 717 students who were selected at random not have to have this opportunity (the non-Academy group). Four overarching themes emerge from the findings:

- Academy group members were more likely than their non-Academy counterparts to participate in career awareness and development activities designed to improve their awareness of and preparation for post-secondary education and employment options. Students in the Academy group were also more likely to work at some point during high school and to be employed in jobs that could be characterized as high quality work-based learning experiences — that is, jobs that were distinct from typical high school employment experiences in terms of the opportunities to learn and develop the skills and attributes that one would expect to promote success in the future.

- The level of participation in career awareness and work-based learning activities was related to variation across the sites in the style in which the Academy model was implemented. In particular, sites that had highly structured employer partnerships or employed a non-teaching person as the Academy coordinator experienced higher levels of participation in and impacts on participation in career awareness and development as well as work-based learning activities.

- Exposure to key aspects of the Academy program was strongly related to the extent to which Academies retained students in the program. While substantial proportions of students in the Academy group were not exposed to key elements of the Academy treatment, the extent of exposure was much higher among students who remained in the Academy until the end of high school.

- Differences in the quality of students' work experiences during high school were strongly related to whether their jobs were part of a work-based learning program linked to the Career Academy.

The remainder of this chapter proceeds as follows. Section I describes the data sources and analysis issues that underlie the findings just summarized. Section II describes the measures used to capture students' school- and work-related experiences and explores whether the group of students selected to attend a Career Academy experienced a greater degree of exposure to career development and awareness activities, work-based learning experiences, and high quality work environments than their non-Academy counterparts. Section III examines how rates of student enrollment in and attrition from the Academy program are related to the extent of their exposure to career awareness and work-based learning activities. It also explores the relationship between the quality of students' work experiences and the extent to which these experiences are part of the Academies' work-based learning programs.

I. Data Sources and Analysis Issues

The primary source of data for the analyses presented in this chapter is a survey that was administered to students in the Career Academies Evaluation sample during their 12th-grade year. Depending on when they entered the study, students completed the 12th Grade Survey at the end of the 1995-96, 1996-97, or 1997-98 school year. The survey asked a variety of questions about teachers and peers in high school, experiences in high school classes, extracurricular activities, and work settings. The survey also asked students about their attitudes toward school and work and about their plans for the future. This report focuses primarily on questions from the 12th Grade Survey that ask about student participation in career development and awareness activities, participation in school-based activities that make use of various work and career-related themes, and employment experiences. The measures developed from the survey are described later in this chapter.[1] This section of the chapter briefly describes the characteristics of the 12th Grade Survey sample and highlights several analytic issues that influence the interpretation of the findings presented later.

A. The 12th Grade Survey Sample

In all, 1,585 students from the full study sample completed this survey. This group of students is referred to as the *12th Grade Survey sample*.[2] As was described in Chapter 1, each of these students had applied and had been eligible for enrollment in one of the 10 Career Academies participating in the evaluation. Because each of these programs was oversubscribed (that is, they received applications from more eligible students than they could serve), eligible applicants had been selected at random to enroll. Of the 12th Grade Survey sample, 868 students (55 percent) were among the group that had been randomly selected to enroll in a Career Academy. These students are referred to as the *Academy group*, although, as had been noted, the group includes those who were never or were no longer enrolled in a Career Academy. The remaining 717 students (45 percent) were among those who had not been selected but who had enrolled in other classes and programs in the same high school or in another school, the *non-Academy group*.[3]

Appendix Table A.1 provides detailed information on the background characteristics of students in the 12th Grade Survey sample. Measures of these background characteristics were taken at the time the student applied for enrollment to a Career Academy. To summarize the data in Appendix Table A.1, the 12th Grade Survey sample includes a mix of students. While some appeared to be at risk of dropping out or to be performing poorly in high school, most appeared to be performing well in their classes, and most believed they would graduate from high school and go on to college.

Over half the members of the 12th Grade Survey sample reported their ethnicity as Hispanic, and nearly 30 percent indicated they were African-American. Self-reported information as well as information collected from school records indicated that many of the students were engaged in school and were performing at or above average at the time they applied for enrollment in a Career Academy. For example, over half the students reported receiving As and Bs in their English and math classes, and approximately 95 percent had 10 or fewer absences during the year. Also, approximately 30 percent of the students scored in the 51st percentile or higher on standardized tests of reading and math during their 8th-grade year. Importantly, most students held high expectations for their education. Nearly all the students planned to graduate from high school, and nearly 70 percent planned to graduate from college.

---

[1] Future reports from the Career Academies Evaluation will examine other data from the 12th Grade Survey.

[2] The study sample for the Career Academies Evaluation includes a total of 1,885 students. Thus, the 12th Grade Survey sample represents 84 percent of the full study sample. Appendix A presents results from a statistical analysis of differences in background characteristics between the 1,585 students who completed the 12th Grade Survey and the 300 students who did not. These analyses indicate that there were some systematic differences between those who completed the 12th Grade Survey and those who did not. As a result, caution should be exercised when attempting to generalize findings from the 12th Grade Survey sample to the full study sample.

[3] Part of the selection process also included establishing (at random) a waiting list of students who could be selected later to enroll in an Academy if slots became available. It is important to note, therefore, that students in the non-Academy group were not selected for the waiting lists and thus were prohibited from enrolling in a Career Academy.

The 10 Career Academies also attracted students who appeared to be at risk of dropping out or doing poorly in high school. Just over one-third of the students reported two or more socioeconomic characteristics that have been associated with a risk of dropping out of or doing poorly in high school.[4] Nine percent of the students reported having an attendance rate of 85 percent or less prior to random assignment. Moreover, 20 percent of the students reported cutting class regularly, 8 percent reported being late for school regularly, and 19 percent reported ever being sent to the office for behavioral problems.

B. Analysis Issues

In the following discussion of the effects of the Career Academy approach on student experiences, it is important to distinguish between measures of program *outcomes* and measures of program *impacts*. In this report, outcomes are measures of students' experiences, behaviors, or attitudes at various points during high school after their application for enrollment in a Career Academy. As will be discussed in detail later, the primary outcomes used in this report capture students' involvement in career development and awareness activities, their involvement in in-school activities that make use of work- or career-related themes and activities, and their participation in work-based learning experiences. These outcome measures are derived from the Career Academies Evaluation 12th Grade Survey.

Focusing only on outcome levels for students in the Academy group could be misleading, however. Virtually all high schools provide opportunities for students to engage in some type of career exploration, and previous research has shown that large numbers of high school students work during high school. In order to determine the net effect of the Career Academy approach, it is necessary to compare the experiences of a group of students who had an opportunity to attend a Career Academy with a group of students who did not. Therefore, the evidence presented in this chapter will consist of two types of analyses: analyses of the average *outcome* levels among Career Academy students and analysis of the *impact* of the opportunity to attend a Career Academy on these outcomes.

An impact is a Career Academy's effect on an outcome and is defined as the difference between the average outcome level of students in the Academy group and the average outcome level of the non-Academy group. This comparison yields an estimate of the effect of the opportunity to attend a Career Academy on student outcomes, over and above what the student would have experienced in the absence of this opportunity. A central issue for the accuracy and reliability of this comparison is whether there are any systematic differences in background characteristics between the two groups of students. If substantial differences existed between the two groups at the start of the study, they might account for any differences that emerge later.

---

[4] These characteristics include living in a single-parent household, having a sibling who dropped out of high school, having parents who do not hold high school diplomas, family receipt of welfare or Food Stamps, being home alone more than three hours per day, and speaking limited English.

Appendix A, Table A.1, presents a statistical analysis of differences in background characteristics between students in the Academy and non-Academy groups from the 12th Grade Survey sample. It indicates that students in the Academy and non-Academy groups are similar on virtually all the background characteristics presented. In other words, there are no systematic differences between the two groups of students. The similarity of these two groups at the time they were randomly assigned to either the Academy or the non-Academy group increases our confidence that any differences between the groups on the 12th Grade Survey measures can be attributed to the Career Academies rather than to any preexisting differences in the characteristics of the students in the two groups.

In order to preserve the similarities between the two groups of students, it is necessary to include all students in the analyses, including students in the Academy group who had never enrolled in a Career Academy or had withdrawn before the end of their 12th-grade year. As was discussed in Chapter 2, 11th grade is the year in which students typically begin their work-based learning experiences. If the analysis includes only students who stayed in the programs, and these students represented only the highest-achieving (or lowest-achieving) students, then any differences in work or other experiences could be artifacts of initial differences between the groups.

Appendix B, Table B.1, presents a statistical analysis of differences among three subsamples of students from the Academy group: those who never enrolled in a Career Academy, those who enrolled but withdrew before the end of their 12th-grade year, and those who remained in a Career Academy during the entire 12th-grade year. It indicates several differences among these groups of students. In all, 52 percent of the Academy group students remained enrolled in a Career Academy until the end of their 12th-grade year. This group of students appeared to be more engaged in school and were less likely to have characteristics associated with a risk of dropping out than those who never enrolled (13 percent of the Academy group) and those who enrolled but withdrew (35 percent of the Academy group). For example, the Academy students who remained in the program through the end of 12th grade were more likely to have attendance rates of 95 percent or greater during the year prior to random assignment than their Academy group counterparts who either never enrolled or left the program before the end of high school. On the other hand, the students who left the Academy before the end of the program were equally or more likely to have scored high on tests of academic achievement, suggesting that these students were as academically engaged as the students who did not leave the program.

Later sections of the chapter present a more detailed analysis of the relationship between the patterns of Academy enrollment and attrition and the extent and quality of work-related experiences of Academy-group students. The findings from this analysis should be interpreted cautiously, however, because of the differences in the background characteristics of those who stayed in and those who left the programs.

The next section of the chapter presents comparisons between all Academy and all non-Academy group members in the 12th Grade Survey sample. Because the two groups were determined at random, the primary difference between them is that the Academy group had the opportunity to attend an Academy, while the non-Academy group did not. Therefore, as has been described, the differences in the outcomes among these groups can be interpreted as the impact of the opportunity to attend a Career Academy on their experiences during high school.

II. Career Academy Impacts on Student Participation in Career Awareness and Work-Based Learning Activities

The comparisons presented in this section center on measures of student work-related experiences in three primary areas:

- exposure to career development and awareness activities outside of school;
- participation in career awareness and development activities that occurred inside the high school; and
- employment and participation in work-based learning activities, including the nature and quality of students' work experiences during high school.

Measures of these experiences were derived from student responses to one or more items on the 12th Grade Survey.[5] Each section that follows first describes the measures that were used to capture these experiences and then compares the percentages of Academy and non-Academy group members who reported that they encountered them during high school.

Overall, the results indicate that students in the Academy group were significantly more likely than their non-Academy counterparts to experience intensive involvement in work-related and work-based learning activities during high school. On the other hand, a substantial number of the students who were randomly assigned to the Academy group did not participate intensively in career awareness and development activities, did not participate in a school-sponsored work-based learning program, and did not become employed in high quality work experiences during high school.

A. Impacts on Participation in Career Development and Awareness Activities Outside of School

This section explores the effect of the opportunity to attend a Career Academy on the extent of student participation in career awareness and development activities such as job shadowing and career-related field trips. In short, the evidence suggests that students in the Academy group were significantly more likely than their non-Academy counterparts to participate in activities such as these during high school.

As was discussed in Chapter 2, each of the 10 Career Academies in this study was able to develop a set of activities and experiences outside the school that were designed to improve students' awareness of and preparation for post-secondary career options. Typically, these activities were designed to expose students to real-world work environments and to working adults who were willing to provide them with information and guidance regarding the requirements, rewards, and options associated with various career choices. These career awareness and development activities included:

---

[5] See Appendix B, Table B.2, for a list of the survey items used to create these measures.

- career-related field trips and other activities designed to improve students' understanding of the world of work in general and the requirements, responsibilities, and rewards of the professional options within the Academy's occupational theme in particular;

- job-shadowing activities, in which students had the opportunity to accompany an adult during a day on his or her job and observe the work environment, responsibilities, and activities of a professional during a regular work day.

- mentoring programs designed to foster relationships between Academy students and adults who would guide them in their personal and career development.

Table 3.1 presents the estimated impact of Career Academies on students' participation in career development and awareness activities outside of school. The first column of the table lists the percentage of students in the Academy group who participated in various career development and awareness activities, and the second column lists the percentage of the non-Academy group who reported participating in the same activities. The third column lists the estimated *impact* of the program — that is, the difference between these percentages. Asterisks next to this number indicate the statistical significance of this difference — that is, the likelihood that the estimated impact reflects real differences between the experiences of the two groups rather than fluctuations due to chance. The results reported in this table indicate that while non-Academy students frequently participated in career awareness and development activities, students in the Academy group were significantly more likely to do so.

The first row of Table 3.1 reveals that 72 percent of students who were offered the opportunity to attend an Academy participated in at least one outside career awareness and development activity (field trips, job shadowing, or mentoring activities). Interestingly, the same could be said for 53 percent of the non-Academy students. The next row of the table also reveals differences in the percentages of the Academy and non-Academy groups who participated in these activities more intensely. Specifically, 39 percent of the students in the Academy group participated in at least two career awareness and development activities. The same could be said of only 16 percent of their non-Academy counterparts. This difference suggests that while non-Academy students experienced some exposure to career awareness and development activities, their experiences, on the whole, were substantially less extensive than those of the students in the Academy group. The next three subsections discuss these patterns in more detail.

1. Impacts on Participation in Career-Related Field Trips. As part of the Career Academies Evaluation, students in the study sample were asked how frequently they had taken a school field trip to learn about a business or industry.[6] They were asked whether, in the course of an academic year, they participated in career-related field trips "never," "once or twice," "three to

---

[6] This question was included in the Career Academies Evaluation School Experience Questionnaire. Students in the study sample completed this survey during the 9th-, 10th-, or 11th-grade year and were asked to report on activities and experiences during that year. This information is available for 1,213 students (77 percent) in the 12th Grade Survey sample.

Table 3.1
Career Academies Evaluation

Impacts on
Participation in Career Awareness and Development Activities
Outside of School

Outcome	Academy Group (%)	Non-Academy Group (%)	Difference (%)	Percent Difference (%)
Ever participated in career awareness and development activities outside of school	72.3	53.1	19.2 ***	36.1
Participated intensively in career awareness and development activities outside of school[a]	38.6	15.8	22.7 ***	143.9
Ever participated in career-related field trips	77.9	72.8	5.1 **	7.1
Participated regularly in career-related field trips[b]	30.8	7.2	23.7 ***	331.1
Participated in job shadowing activities	45.2	22.7	22.4 ***	98.9
Had a mentor	40.1	24.0	16.1 ***	67.3
Had a mentor who was very important:				
as a friend	15.9	14.2	1.7	12.3
for personal advice	13.2	11.9	1.3	10.7
as a role model	20.0	14.0	5.9 ***	42.1
for advice on education and careers	19.0	14.5	4.5 **	31.1
for education and career contacts	17.7	13.3	4.5 **	33.9
Sample size (N=1585)	868	717		

SOURCE: MDRC calculations from Career Academies Evaluation 12th Grade Survey.

NOTES: Rounding may cause slight discrepancies in calculating differences.

A two-tailed t-test was applied to differences between the Academy and non-Academy groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a] Students who indicated participating in two or more career awareness and development activities are considered to be participating intensively.

[b] Students who indicated participating in at least three career-related field trips per academic year are considered to be participating regularly.

six times," or "several times per month or more." Students' responses to these questions are summarized in the third and fourth rows of Table 3.1.

The third row of Table 3.1 reports the proportion of Academy and non-Academy group members who reported *any* participation whatsoever in career-related field trips. The results here indicate that while students in both Academy and non-Academy groups participated in career-related field trips to some degree, students in the Academy group were more likely to do so than students in the non-Academy group; 78 percent of students who had the opportunity to attend an Academy reported participating in a career-related field trip, while 73 percent of the non-Academy group reported doing so. This represents a statistically significant difference of 5 percentage points (or a 7 percent increase over the non-Academy group level). While this difference appears to be relatively moderate, the differences in more frequent participation in career awareness and development activities are more dramatic. The next row of the table reports that 31 percent of the students in the Academy group reported going on career-related field trips on a regular basis — at least three times per year — while only 7 percent of the non-Academy students did the same. Thus, these findings suggest that while it is not uncommon for high school students to experience some exposure to career-related field trips, students in the Academy group were more than four times as likely as those in the non-Academy group to report what might be called intensive participation in these activities.

2. Impacts on Job Shadowing. As was discussed in Chapter 2, some of the Career Academies endeavored to provide opportunities for students to "shadow" an adult worker throughout that person's normal routine at his or her place of employment during a typical work day. The goal of this activity was to allow the students to observe all the activities and responsibilities of the professional so that they might develop a better sense of the world of work in general and that profession in particular. In order to estimate the level of participation in these activities, the 12th Grade Survey asked students whether or not they had ever participated in an activity in which they spent time following workers at a work site.

The fifth row of Table 3.1 reports the percentage of students in each group who reported participating in job-shadowing. As the table indicates, 45 percent of Academy group members reported having a job-shadowing experience at some point during high school. This figure is statistically significant and almost twice as high as the 23 percent of non-Academy students who reported participating in this same activity. In short, while less than half of the students originally assigned to the Academy group were exposed to this element of the Academies' career awareness and development activities, the extent of their exposure substantially exceeded that of their non-Academy counterparts.

3. Impacts on Mentoring. Chapter 2 also indicated that the Career Academies' career awareness and development activities sometimes included programs designed to foster mentoring relationships between Academy students and caring adults who would guide them in their personal and career development. In addition to these specific mentoring programs, each of the Career Academies attempted to increase students' exposure to activities — such as job shadowing, career-related field trips, and internships — in which students might encounter caring adults and develop relationships with potential mentors. In order to evaluate the results of these efforts, this section explores the effect of Career Academies on students' mentoring experiences. The evidence presented here suggests that students in the Academy group were more likely than those in the non-Academy group to be involved in a mentoring program as well as to have mentors who were important to them as role models or sources of educational and career-related advice and connections.

To capture the extent to which Academies provided opportunities to develop such relationships, the 12th Grade Survey asked students whether or not they had ever been involved in a program in which they had been "paired with an adult mentor or someone who took a special interest" in them. The survey also contained a number of questions regarding how important the student felt that his or her mentor was in a variety of areas: as a friend, as a role model, as someone who helped make decisions, as someone who helped with personal problems, and as a source of advice and contacts regarding post-secondary education and careers. Students who reported having a mentor were asked whether this person was "very important," "sort of important," "not very important," or "not at all important" on each of these dimensions.

The last rows of Table 3.1 report the existence of significant differences in the percentages of Academy and non-Academy group members who reported being involved in mentoring programs. In particular, the sixth row of the table indicates that 40 percent of students in the Academy group reported having a mentor during high school. This percentage significantly exceeds the 24 percent of non-Academy students who reported being involved with a mentor. The rows that follow report the percentage of students who indicated that having a mentor was "very important" to them in one or more ways. According to these estimates, between approximately 13 and 20 percent of Academy students reported having relationships with mentors who were important to them as friends, role models, sources of personal and professional advice, and sources of education and career contacts. In other words, among students who reported having mentors, between approximately 35 and 50 percent of those in the Academy group reported developing mentoring relationships that they considered to be important. Interestingly, the strongest differences in the mentoring experiences of Academy and non-Academy students exist with respect to their career-related relationships. In particular, there were no significant differences between the likelihood that Academy and non-Academy students had a mentor who was important as a friend or a source of personal advice. These findings suggest that the Career Academies in this evaluation used their relationships with employers to successfully increase Academy students' involvement with mentors. On the other hand, the contact with these mentors affected the support for Academy students' educational and career development more than it affected the development of relationships which provided personal and social support.

B. Impacts on Student Exposure to Career Development and Awareness Experiences in School

In addition to involving students in career development and awareness activities that occur primarily outside of school, Career Academies attempt to integrate career themes into students' school experiences. As was mentioned in Chapter 2, this integration can take the form of classes focused around the Academy's occupational theme as well as the introduction of issues relating to the world of work into the students' regular classroom or school experiences. The evidence presented in this section suggests that students in the Academy group were significantly more likely than their non-Academy counterparts to have regular discussions with adults regarding careers and work, to receive regular instruction or counseling on how to find a job, or to receive regular instruction or counseling on how to behave on a job. On the other hand, the students in the non-Academy group reported a substantial level of participation in these activities, suggesting that the opportunity to attend a Career Academy may represent only a modest increase over the experiences these students would have had in its absence.

In order to measure the extent to which these activities occurred in the Academies in this evaluation, the 12th Grade Survey asked students a series of six questions regarding how often certain work- and career-related activities occurred in school during their senior year. These activities included studying about jobs and their requirements in a class, discussions with other students or with adults on school and work, instruction or counseling on how to find a job or act on the job, and activities in which adults came to school to talk about jobs. The potential answers included "never," "once or twice per month," "about once a month," and "several times a month or more."

The first row of Table 3.2 reports the percentages of students in the Academy and non-Academy groups who reported participating in three or more of these experiences at least once per month. The data indicate that students in the Academy group were significantly more likely than non-Academy students to be exposed to career awareness and development activities that occurred in school. The data also suggest, however, that the differences in the participation in career awareness and development activities that occurred in school are less dramatic than the differences in the participation in career awareness and development activities that occurred outside of school; 47 percent of students in the Academy group reported frequent participation in these activities, compared with 40 percent of the students in the non-Academy group. The level of participation in the control group may strike some as particularly high. Data analyses conducted elsewhere suggest that this level of participation in in-school career awareness and development activities may be a function of non-Academy students' participation in other school-to-work programs.[7]

Table 3.2 also lists the percentages of students in the Academy and non-Academy groups who reported participating in each of the in-school career awareness activities regularly — that is, on at least a monthly basis. There were no significant differences between the percentages of the Academy and non-Academy groups who reported studying about different kinds of jobs and their requirements in class or having discussions with other students regarding work and careers on a regular basis. Moreover, students in the Academy group were not significantly more likely than non-Academy students to attend an activity where parents or other adults came to the school to talk about jobs.

On the other hand, Academy students were significantly more likely to receive counseling or instruction regarding how to act on the job, have discussions with adults regarding careers and work, and receive instruction or counseling on how to find a job. For example, the table reports that 41 percent of students in the Academy group at least once per month received instruction or counseling regarding how to act on the job, while only 34 percent of students in the non-Academy group reported experiencing this activity with the same frequency.

Overall, these patterns suggest that most of the differences in students' exposure to career awareness and development activities are a function of the greater extent to which students in the

---

[7] In particular, analyses in Appendix A suggest that most students with no participation in any sort of school-to-work program do not report regular participation in in-school career awareness and development activities and that their levels of participation are significantly different from those with more direct involvement in school-to-work programs (see Appendix B, Tables B.3 and B.4).

Table 3.2
Career Academies Evaluation

Impacts on
Participation in Career Awareness and Development Activities in School

Outcome	Academy Group (%)	Non-Academy Group (%)	Difference (%)	Percent Difference (%)
High overall level of exposure to career awareness and development activities in school[a]	47.3	40.0	7.3 ***	18.4
Regularly studied about kinds of jobs and their requirements in a class[b]	38.3	35.1	3.2	9.2
Had regular discussions with other students about careers and work	58.1	55.6	2.5	4.6
Regularly attended school activities when parents or other adults talk about jobs	22.6	20.4	2.2	10.9
Had regular discussions with adults about careers and work	56.0	49.1	6.8 ***	13.9
Received regular instruction or counseling on how to find a job	35.9	28.9	7.0 ***	24.3
Received regular instruction or counseling on how to act on the job	41.1	34.1	7.1 ***	20.7
Sample size (N=1585)	868	717		

SOURCE: MDRC calculations from Career Academies Evaluation 12th Grade Survey and the Student School Experience Questionnaire.

NOTES: Rounding may cause slight discrepancies in calculating differences.

A two-tailed t-test was applied to differences between the Academy and non-Academy groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a] This is a measure of students' ratings of the following in-school career development and awareness activities from the 12th Grade Survey. Students who indicated participating in at least three activities per month are considered to be participating at a high level.

[b] Students who indicated participating in a specific career awareness and development activity at least once a month are considered to be participating "regularly".

Academy group were exposed to instruction and counseling about locating and performing well on jobs. They also suggest a substantial level of participation in career awareness and development activities among the non-Academy students. These findings suggest two primary interpretations. First, it is possible that the students in both the Academy group and the non-Academy group are somewhat unusual in the extent of their interest in career-related educational activities such as the ones that have been discussed. It is also possible that the host high schools in which the Career Academies in this evaluation were located were rich environments that provided many opportunities for participation in career awareness and development activities for students, even those who were not in the Academy. While it will be difficult to distinguish between these two possibilities, the analysis at the end of the chapter, which explores differences in the background characteristics and experiences of students with differing levels of participation in the Career Academy, will attempt to shed some light on this issue.

It is interesting to note that the strongest differences in the mentoring experiences of Academy and non-Academy students were in career-related aspects of these relationships. While there were no significant differences between the two groups in the likelihood of having a mentor who was important as a friend or source of personal advice, students in the Academy group were significantly more likely to have mentors who were important as role models, sources of advice on education and career matters, and sources of education and career contacts. These results suggest that the Career Academies in this evaluation successfully used the formal relationships with employers described in Chapter 2 to increase Academy students' involvement with caring adult mentors. Moreover, the contact with these mentors affected the availability of support for Academy students' educational and career development more than it affected the availability of social support.[8]

C. Impacts on Work Experience and Participation in Work-Based Learning Activities

One of the most distinctive elements of the Career Academy approach is the effort to use relationships with employers to create work-based learning opportunities for students — that is, work experiences that are planned to contribute to students' intellectual and career development. As has been described in Chapter 2, most of the 10 Academies in the sample attempted to develop a program of internships to begin in the summer between the 11th and 12th grades. Other programs provided such opportunities that began in the 12th grade or began in the summer and extended through the end of 12th grade. This section examines the extent to which the effort to implement such programs affected three areas of students' work experiences during high school:

- students' "overall" work experiences — the frequency, timing, duration, and intensity of work experienced by students in the Academy and non-Academy groups during high school;

---

[8] It is important to note here that the Career Academies 12th Grade Survey, the source of data regarding the extent of students' mentoring relationships, asks students only if they "have ever been part of a *program* . . . where you were paired with an adult mentor or someone who took a special interest in you" (emphasis added). As has been mentioned, the evidence reported in Chapter 2 suggests that Academy students often developed mentoring relationships as a result of their involvement in work environments in which caring adults took an interest in them. It is possible that mentoring relationships such as these would go unreported in the answers to this survey question. Therefore, it is possible that the data reported in Table 3.1 underestimate the extent of mentoring relationships among Academy and non-Academy students.

- students' participation in "work-based learning" activities — employment experiences that were a part of a planned program of work that was connected to school; and

- students' participation in "high quality" work-based learning activities — job opportunities that were distinct from typical high school employment experiences in terms of the opportunities to learn and develop the skills and attributes that one would expect to promote success in the future.

The evidence that follows suggests that the opportunity to attend a Career Academy increased students' levels of employment, particularly during the summer between the 11th and 12th grades. It also had a significant impact on students' participation in work-based learning programs and their exposure to high quality work-based learning experiences. On the other hand, the data also suggest that a substantial portion of the students in the Academy group did not participate in work-based learning activities and were not exposed to high quality work environments during high school. The section that follows this one explores this issue further by examining the relationship between outcome levels and attrition from the Career Academy.

1. Overall Employment Experiences. Table 3.3 compares the employment experiences of students in the Academy and non-Academy groups, from the summer prior to their scheduled senior year in high school through the end of their senior year. In general, students in the Academy group were more likely to be employed during high school than were their non-Academy counterparts, and this difference is concentrated in the summer between 11th and 12th grade.[9]

The first row of Table 3.3 presents the percentages of students in the Academy and non-Academy groups who reported ever being employed during high school. The numbers indicate that a relatively high percentage of each group — 82 percent of Academy students and 78 percent of non-Academy students — reported being employed at some point during high school. Students in the Academy group were also more likely than their non-Academy counterparts to report having paid employment during high school; 79 percent of students in the Academy group reported having a paid job while in high school, compared with 75 percent of their non-Academy counterparts.

These differences in overall employment appear to be largely the result of differences in employment levels between Academy and non-Academy students during the summer between the 11th and 12th grades. While 53 percent of the Academy students reported being employed in the summer prior to their senior year, 44 percent of the non-Academy students reported being employed in that period. On the other hand, there were no significant differences in the employment rates of Academy and non-Academy students during the 12th-grade academic year. As the table indicates, while 66 percent of students in the Academy group reported being employed during their senior year, 62 percent of the non-Academy students reported doing so. Thus, while Academy students were significantly more likely than their non-Academy counterparts to be employed in the summer prior to their scheduled senior year, they were not significantly more likely to be employed during the senior year itself.

---

[9] The numbers in this table include both students who were employed and those who were not employed, and thus they can be thought of as capturing the employment experiences of the average student in the Career Academy program group.

Table 3.3
Career Academies Evaluation

Impacts on Employment Outcomes

Outcome	Academy Group	Non-Academy Group	Difference	Percent Difference (%)
Ever employed during high school (%)	82.1	78.3	3.8 *	4.9
Ever employed in a paid job during high school (%)	79.0	75.4	3.6 *	4.7
Employment during summer between 11th and 12th grades				
Ever employed (%)	53.4	43.9	9.4 ***	21.5
Ever employed in paid job (%)	51.0	42.5	8.5 ***	19.9
Average total weeks worked[a]	4.6	3.9	0.7 ***	17.9
Average hours worked per week[a]	16.4	12.6	3.8 ***	30.5
Employment during 12th grade school year				
Ever employed (%)	65.9	62.4	3.5	5.6
Ever employed in paid job (%)	56.6	55.9	0.6	1.1
Average total weeks worked[a]	17.3	17.4	-0.1	-0.6
Average hours worked per week[a]	16.0	15.0	1.0	6.7
Sample size (N=1585)	868	717		

SOURCE: MDRC calculations from Career Academies Evaluation 12th Grade Survey.

NOTES: Rounding may cause slight discrepancies in calculating differences.

A two-tailed t-test was applied to differences between the Academy and non-Academy groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a] Average total weeks worked and average hours worked per week include zero values for sample members who did not work.

The second section of Table 3.3, in addition to reporting the employment rates, presents the average hours worked per week, average number of weeks worked, and percent employed in a paid job among Academy and non-Academy students during the summer prior to their scheduled senior year.[10] The numbers here suggest that the differences between Academy and non-Academy students in the likelihood of being employed during the summer translate into the differences in other summer employment statistics. In particular, the students in the Academy group worked an average of 16.4 hours per week and 4.6 weeks during the summer. These levels are significantly higher than the 12.6 hours per week and 3.9 weeks reported among non-Academy students. Moreover, 51 percent of the students in the Academy group had a *paid* job, as compared with 43 percent of the non-Academy students.

The school year employment experiences of Academy and non-Academy students, on the other hand, appear to be relatively similar. In fact, the table indicates that there are no statistically significant differences between the school year experiences of Academy and non-Academy students on any of these measures. Students in both the Academy and the non-Academy groups appeared to work an average of 17 weeks during the academic year. Students in the Academy group worked an average of 16 hours per week, compared with 15 hours per week among non-Academy students.[11] Finally, 57 percent of Academy students were employed in a paid job during the school year, compared with 56 percent of non-Academy students.

In summary, students in the Academy group were more likely to be employed, were likely to work more, and were more likely to work for pay during high school than their non-Academy counterparts. These differences appear to be concentrated in the summer prior to their senior year.

2. Participation in Work-Based Learning Activities. Beyond determining the extent of students' employment, one of the goals of the Career Academies Evaluation is to learn the effect of Career Academies on the nature of students' employment experiences and, in particular, on their involvement in school-sponsored programs of work-based learning. In order to ascertain the extent to which students participated in such activities, the 12th Grade Survey asked students a series of more detailed questions regarding their employment experiences between the summer after the 11th grade and the end of their senior year. In addition to general questions regarding the extent, duration, and intensity of their employment experiences, students were asked whether or not they held a job:

- that was part of a school program or class,
- for which they received course credit,
- that a teacher helped them find,
- at which an adult from school checked with the work supervisor to monitor the student's progress, or

---

[10] These statistics include the respondents who were not employed. Employment outcome measures among students who were not employed were set to zero.

[11] The data regarding hours and weeks worked include the respondents who were not employed. Employment outcome measures among students who were not employed were set to zero.

- at which a supervisor at work kept an adult from school informed about the student's progress.

Students who responded "yes" to any of these questions were considered to have participated in a program of work-based learning. As was mentioned in Chapter 1, work-based learning is defined as "work experiences that are planned to contribute to the intellectual and career development of students."[12] It is possible that some of the work experiences connected to school do not fit into this definition, but it is difficult to imagine how Academy students' work experiences that are not connected to school in any way are part of the Academy's planned program of work experience. Therefore, the existence of any connection between school and work was chosen as a minimum threshold for considering an employment experience as part of a program of work-based learning. With this in mind, the outcome levels among the students in the Academy group should be considered an "upper boundary" on the extent of their participation in work-based learning activities.

The top panel of Table 3.4 summarizes student participation in work-based learning activities during high school. The table reveals that students in the Academy group were significantly more likely than non-Academy students to have participated in a work-based learning experience. As with the employment differences, this difference results primarily from significant differences in the percentage of students in each group who were employed in a work-based learning experience during the summer prior to their senior year. Of the students in the Academy group, 35 percent participated in a work-based learning program at some point between the end of 11th grade and the end of 12th grade. By comparison, only 26 percent of the non-Academy students participated in work-based learning activities during the same period. Approximately 18 percent of the students in the Academy group students reported participating in work-based learning experiences during the summer prior to 12th grade, while only 9 percent of the students in the non-Academy group did so. This difference was statistically significant. On the other hand, the difference between the 23 percent of students in the Academy group who reported such an experience during their senior year and the 21 percent of non-Academy students who reported the same was not statistically significant. Therefore, whatever effect that the opportunity to enroll in a Career Academy had on the likelihood of participating in a work-based learning program was concentrated during the summer prior to their senior year.

While the evidence indicates that students in the Academy group were more likely than their non-Academy counterparts to have participated in a program of work-based learning, it also shows that about two-thirds of the students who had the opportunity to enroll in a Career Academy never worked in a job that was connected to school in any way. In other words, most of the students who were randomly assigned to the Academy group were not exposed to this key element of the Academy program. As these activities were not generally scheduled to occur prior to the end of the 11th-grade school year, it is possible that the level of participation in work-based learning is a function of the level of enrollment in and attrition from the Academies among these students. Later sections of this chapter explore this issue further.

3. Participation in High Quality Work-Based Learning Activities. As part of the 12th Grade Survey, students were asked a variety of questions regarding the extent of their expo

---

[12] Office of Technology Assessment, 1995, p. 13.

Table 3.4
Career Academies Evaluation

Impacts on Participation in Work-Based Learning Activities

Outcome	Academy Group (%)	Non-Academy Group (%)	Difference (%)	Percent Difference (%)
Participation in work-based learning				
Ever had a work-based learning experience	34.5	26.1	8.4 ***	32.0
Had work-based learning experience during summer between 11th and 12th grades	17.9	8.7	9.2 ***	106.2
Had work-based learning experience during 12th grade school year	22.8	21.4	1.4	6.6
Combined employment during the summer between 11th and 12th grades and the 12th grade school year				
Ever had job with:[a]				
High demand for skills	24.6	20.3	4.2 **	20.9
High level of advice	24.5	21.7	2.7	12.6
High level of engagement	27.7	24.3	3.4	14.0
Opportunities to learn	27.5	21.5	6.0 ***	28.0
Overall high work-based learning content[b]	21.8	16.7	5.1 **	30.5
Employment during summer between 11th and 12th grades				
Ever had job with:[a]				
High demand for skills	13.5	6.3	7.2 ***	114.4
High level of advice	11.0	7.0	4.0 ***	57.3
High level of engagement	11.2	10.5	0.7	6.5
Opportunities to learn	13.1	8.7	4.4 ***	49.9
Overall high work-based learning content[b]	10.6	6.2	4.4 ***	71.2
Employment during 12th grade school year				
Ever had job with:[a]				
High demand for skills	16.1	16.9	-0.8	-4.9
High level of advice	19.1	16.9	2.3	13.4
High level of engagement	21.0	17.1	3.9 **	23.0
Opportunities to learn	19.4	15.6	3.7 *	24.0
Overall high work-based learning content[b]	14.9	12.5	2.5	20.0
Sample size (N=1585)	868	717		

(continued)

Table 3.4 (continued)

SOURCE: MDRC calculations from Career Academies Evaluation 12th Grade Survey.

NOTES: Rounding may cause slight discrepancies in calculating differences.

A two-tailed t-test was applied to differences between the Academy and non-Academy groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a] The measures of "High demand for skills", "High level of advice", "High level of engagement" and "Opportunities to learn" are based on the average score of a combination of questions regarding activities on the job.

[b] Overall high work-based learning content is based on the average score among students with a high score on the combination of the "High demand for skills", "High level of advice", "High level of engagement" and "Opportunities to learn" measures.

sure to elements of what might be considered "high quality" work-based learning activities. In particular, students who were employed during the summer after 11th grade or during their senior year were asked a series of questions regarding the frequency of various activities, including the use of certain skills, and the frequency with which they received advice on a variety of subjects.[13] Students were asked to respond on a scale of 1 to 5, where 1 represented "never," 2 "rarely," 3 "sometimes," 4 "often," and 5 "almost always." Students also answered a series of questions regarding how they felt about the time they spent on the job, such as whether they were bored, whether they felt that the job gave them opportunities to learn new things, and the extent to which their job experiences affected their career choice.[14]

Analysis of the correlations between these responses suggested five dimensions of the quality of student work experiences.[15] In particular, the skill demands of the students' jobs were measured by a set of indices that averaged the frequency with which students reported that their duties required them to use reading, writing, and computer skills. This variable captures the extent to which students were placed in jobs with relatively high demands for higher order thinking skills.[16] The scale for these indices varied from 1 through 5, and students were classified as having jobs with a high demand for skill, or a high level of advice, if the average answer on the respective index was equal to or greater than 3 — that is, if the average answer across each item in the index was at least "sometimes."

The level of advice students received from their supervisors was captured by a separate index, which measured the average frequency with which students reported receiving advice regarding the use of interpersonal skills, the use of communications skills, and the development of good work habits. This measure was intended to capture the extent to which students were working in environments characterized by a high level of investment in their training and development. As with the demand for skill, students were classified as having jobs with a high level of advice if the average answer on the respective index was equal to or greater than 3 — that is, if the average answer across each item in the index was at least "sometimes."[17]

The extent of students' engagement in a job was measured by an average of the questions regarding whether or not they felt bored on the job and did more than the minimum required. The scale for this index varied from 1 to 4, and students were classified as being highly engaged in their job if the index for engagement exceeded 3.5 — that is, halfway between "sort of true" and "very true."

---

[13] In particular, the students were asked how often they did the following things on their job: read (for example, job manuals or instructions), used math, wrote, used computers, worked with their hands, dealt with people, received advice on how to use communication skills, received advice on how to use math skills, received advice on good work habits, and received advice on how to develop good human relations skills.

[14] In particular, students were asked, "Thinking about your job, how true is each statement: I did more than the minimum required; I felt bored and that time was dragging; I felt my work was meaningful and important; I got a chance to learn a lot of new things; my job has taught me the importance of a good education; my job has influenced my career choice." Students' answers to these questions could range from 1 through 4, from "not true at all" to "very true."

[15] Principal components analysis of these data revealed four (orthogonal) components of students' job experiences, each of which appears to reflect a different dimension of the students' work environment.

[16] Use of math skills and "dealing with people" were left out of this dimension, because the data suggested that they were associated with service jobs such as working a cash register and might not measure the extent to which a student was practicing higher order thinking skills.

[17] This cutoff also represents approximately the 75th percentile of the responses to these questions. In other words, the jobs categorized as high on these dimensions can be thought of as representing the top 25 percent of jobs.

The extent to which students were exposed to opportunities to learn on their jobs was measured by an index that averaged student responses regarding the extent to which they felt that their job was meaningful and important, helped them to learn new things, taught them the importance of getting a good education, and influenced their career choice. As with engagement, students were classified as having a job with a high level of opportunities to learn if the index for opportunities to learn exceeded 3.5.[18]

Finally, the overall work-based learning content of the job was measured by the average across all these measures. In particular, students who reported having an average equal to or greater than 3.5 across all the questions for the above indices were considered to have had an employment experience with a high level of overall work-based learning content. Among the students from both the Academy and non-Academy groups who were employed, approximately 25 percent of students held jobs that met this criterion. Therefore, this cutoff separated the best 25 percent of jobs from the rest of the jobs students had while in high school.

The second section of Table 3.4 summarizes the quality of employment experiences across these dimensions and the exposure to *high quality* work-based learning activities for Academy and non-Academy students. In general, the numbers in this table suggest two conclusions. First, the extent to which students in the Academy group were exposed to such experiences significantly exceeded that of the non-Academy group. Second, the majority of the students randomly assigned to the Academy group were *not* exposed to high quality employment experiences.

This section of the table summarizes the quality of students' employment experiences from the summer prior to the 12th grade through the end of their senior year. These numbers indicate the existence of significant differences in the percentages of Academy and non-Academy students who had high quality employment experience on every dimension, except the extent to which students received advice and guidance regarding the use of their skills and the development of good work habits and whether they were highly engaged in their jobs. Among the other dimensions of the job experience, however, Academy students seemed most likely to participate in work experiences in which they were highly engaged and which provided them with opportunities to learn. The table also shows that, among these measures, the program had the largest impact on students' employment in jobs in which they perceived a high degree of "opportunities to learn" and in which they experienced a high level of "overall work-based learning content."

The first row of this section of the table reports that 25 percent of students in the Academy group were employed in jobs with a high demand for reading, writing, and computer skills during high school. The percentage of non-Academy students who reported a similar experience was significantly less — 20 percent. The next row in the table indicates that 25 percent of students in the Academy group reported being employed in jobs where they received a high level of advice. This figure did not, however, significantly exceed the 22 percent reported among the non-Academy group. Approximately 28 percent of students in the Academy group reported having employment experiences in which they were highly engaged and experiences that provided them with a high level of "opportunities to learn." This significantly exceeded the 22 percent of non-Academy students who reported having jobs with a high level of "opportunities to learn." However, it did not significantly exceed the 24 percent of non-Academy students who reported having jobs in which they were highly engaged. Finally, 22 percent of the students in the Academy group reported having jobs with high overall work-based learning content at some point during high school, compared with only 17 percent of the non-Academy students.

---

[18] As the cutoff for skill demands and level of advice does, this cutoff again represents approximately the 75th percentile of the responses to these questions. In other words, the jobs categorized as high on these dimensions can be thought of as representing the top 25 percent of jobs.

These patterns suggest that while the majority of students who had the opportunity to attend a Career Academy did not have a high quality work-based learning experience, the percentage of these students who did is significantly higher than it would have been had they not had the opportunity to attend an Academy.

The third and fourth sections of Table 3.4 present these results separately for the summer before the 12th grade and for the 12th-grade school year. Again, the table suggests that in general the percentage of students in the Academy group who had high quality work-based learning experiences exceeds that of non-Academy students in each period considered. It is also again apparent that during each period in question, the majority of students in the Academy group were not employed in a job with a high level of work-based learning. For example, the table reports that during the summer prior to 12th grade, 11 percent of the students in the Academy group worked in jobs with a high level of overall work-based learning content. In other words, in the summer prior to their senior year, 89 percent of the students in the Academy group were either working a job without a high level of work-based learning or not working at all. Therefore, if Career Academies seek to involve all or even most of their students in a program of work-based learning, these results suggest that there is much room for growth in the participation of Academy students in this aspect of the program.

There are several potential explanations for this pattern. First, as was mentioned in Chapter 2, a substantial portion of the students in the Academy group do not meet the criteria, academic and otherwise, that the Academies have established as minimum thresholds for participation in student internship programs. Second, these work-based learning activities are typically scheduled to occur prior to the summer before students' senior year in high school. As the evidence presented in the next section will show, a substantial portion of students in the Academy group left the program before that time. Therefore, the levels of participation in work-based learning activities may be due in part to the attrition that occurs between the time that students are randomly assigned to the Academy and the senior year of high school.

Since individual-level data are not available on the reasons why students did not participate in work-based learning, it would be difficult to explore the first issue empirically. Section III of this chapter, however, will explore the second issue by examining the variation in the level of participation in work-based learning as well as career awareness and development activities across groups of students who enrolled and remained in the Academies for different lengths of time. This type of analysis is not conclusive, in that it is difficult to disentangle the effects of different levels of exposure to the Academy among students in the experimental group from the potential effects of characteristics and circumstances that may have contributed to students' decisions to stay in or leave the Academy at various points in time. Nevertheless, this analysis may still help to suggest the magnitude of the relationship between attrition in the Academies and exposure to the key elements of the Academy experience.

Before proceeding to this analysis, however, the next subsection evaluates the extent to which these overall impact and outcome estimates reflect the degree of variation across the sites in the implementation of the Academy model.

4. Site-Specific Variation in Outcomes and Impacts. The previous chapter discussed the variation that existed in the level and manner of implementation of key aspects of the Academy program. In particular, it identified two approaches to classifying the level and style of implementation across the sites in this evaluation. One of these was based on the level of structure in the sites' approach to their employer partnerships. The other was based on the manner in which sites filled the role of liaison between the programs and the employer partnerships, the person or persons responsible for developing and coordinating various employer-sponsored activities for students. The evidence suggested that meaningful differences existed in both the approaches to these issues and the experiences of students and teachers in the Academies. These differences in turn suggest the possibility that the patterns in impact and outcome levels just described might vary across the sites in ways that reflect their varied approaches to the implementation of the Academy model.

Table 3.5 presents an analysis of the variation in outcome levels and impacts according to the different approaches to implementation taken by the sites in this evaluation. This analysis is only preliminary, and this subject will be explored in greater detail in upcoming reports. These preliminary patterns, however, suggest that the approach to implementation is significantly related to outcomes and impacts along several dimensions. In particular, students at sites that either had highly structured employer partnerships or used a non-teaching person as a coordinator[19] reported significantly higher outcomes across all dimensions except employment in a high quality work-based learning job. For example, 48 percent of the students in the Academy group at these sites reported intensive involvement in career awareness and development activities that occurred in school, compared with 30 percent of the students in the Academy groups in the sites without either of these traits. Moreover, the impact on participation in these outcomes across these two groups of sites was 32 and 15 percentage points, respectively.

Having highly structured employer partnerships or having a non-teaching person responsible for coordinating the employer partnerships was also strongly related to participation in work-based learning programs; 41 percent of students in the Academy group at the sites with these characteristics had a work-based learning experience (that is, had a job that was connected to school), compared with 29 percent of the students in the other sites. Moreover, the Academy treatment had a significant impact of 13 percentage points in these sites, compared with an insignificant impact of 3 percentage points in the others.

---

[19] These included the Academy of Finance in Baltimore, the Academy of Travel and Tourism in Miami, the two Electronics Academies in East Side, and the Public Service Academy (PSA) in Washington, D.C. There was almost complete overlap between the sites that had highly structured employer partnerships and the sites that had non-teaching persons in the coordinator role. In particular, all the sites that had highly structured employer partnerships had a non-teaching coordinator. PSA was the only site that had a non-teaching coordinator but did not have highly structured employer partnerships.

Table 3.5
Career Academies Evaluation

Impacts on School-Work Connection Measures by Level of Employer Partnership Structure

	Sites with:[a]									
	Highly Structured Employer Partnerships/ Non-Teacher Coordinator				Less Structured Employer Partnerships/ Teacher Coordinator					
Outcome	Acad. Group (%)	Non-Acad. Group (%)	Impact (%)	Percent Difference (%)	Acad. Group (%)	Non-Acad. Group (%)	Impact (%)	Percent Difference (%)	Probability that outcomes differ across site groups	Probability that impacts differ across site groups
Participated intensively in career awareness and development activities outside of school	47.5	15.7	31.8 ***	202.8	30.4	15.5	14.9 ***	96.5	***	***
High overall level of exposure to career awareness and development activities in school[b]	52.2	41.8	10.5 ***	25.1	42.9	37.9	5.0	13.3	***	
Ever employed during high school	84.8	82.0	2.8	3.4	79.7	74.7	5.1 *	6.8	***	
Ever had work-based learning experience	40.5	27.4	13.1 ***	47.7	28.6	25.1	3.5	13.8	***	**
Ever had job with overall high work-based learning content	22.5	19.2	3.4	17.5	20.9	14.7	6.2 **	42.3		
Enrolled in an Academy at the end of 12th grade	51.0	--			54.0	--				
Sample size (N=1585)	425	345			443	372				

(continued)

Table 3.5 (continued)

SOURCE: MDRC calculations from Career Academies Evaluation 12th Grade Survey.

NOTES: Rounding may cause slight discrepancies in calculating differences.

A two-tailed f-test was applied to differences between the two site groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]Sites included in the "highly structured employer partnerships/non-teacher coordinator" group are the Public Service Academy, Academy of Travel and Tourism, Academy of Finance, and the Electronics Academies. Sites included in the "less structured employer partnerships/teacher coordinator" group are the Health Professions Academy, Global Business Academy, Business and Finance Academy, Academy for Aerospace Technology, and the Watsonville Video Academy.

[b]This is a measure of students' ratings of a set of in-school career development and awareness activities from the 12th Grade Survey (see Table 3.2). Students who indicated participating in at least three activities per month are considered to be participating at a high level.

One potential source of these site-level differences in outcomes and impacts might be variation in the extent to which Academy students at these sites enrolled and remained in the Academies until the end of high school. If students at sites with highly structured employer partnerships were more likely to remain in an Academy through the 12th grade, they would be more likely to participate in these key aspects of the Academy program. Estimates of the level of attrition across these groups of sites, however, do not support this argument. In fact, they indicate only minor differences in the percentage of students in the Academy group who remain in the Academy throughout high school. In particular, the bottom row of Table 3.5 shows that while 51 percent of the Academy students at sites with highly structured partnerships remain in an Academy through the end of 12th grade, the same can be said of 54 percent of the students at sites without highly structured partnerships.

Interestingly, the level of structure of the sites' employer partnerships and the manner in which they organize the coordination of the employer partnerships appear to be *unrelated* to the percentage of Academy students that report having a job with overall high work-based learning content at each site. In particular, neither the average level of participation in high quality employment experiences nor the impact of the opportunity to attend a Career Academy varies significantly across these groups of sites. While 23 percent of students in sites with a high level of coordination and a non-teacher coordinator reported having a high quality work-based learning experience, 21 percent of the Academy students in the sites with less structured partnerships reported the same thing. In fact, while the difference was not statistically significant, the impact on employment in high quality jobs at these sites was actually larger (and statistically significantly larger) than the impact at sites with highly structured employer partnerships or a non-teaching coordinator.

In sum, this preliminary analysis of site-specific differences suggests that career awareness and development as well as work-based learning outcomes and impacts are positively related to whether or not sites have highly structured employer partnerships and employ a non-teaching person as the Academy coordinator. These arrangements do not, on the other hand, appear to be associated with students' employment in *high quality* work-based learning jobs.

III. Student Outcomes and Enrollment in and Attrition from the Academies

As the previous section revealed, a substantial portion of the students randomly assigned to the Career Academy did not participate in activities that are central toe the Academies' goal of connecting school and work. Specifically,

- 61 percent of the Academy group did not participate intensively in career awareness and development activities outside of school;[20]
- 53 percent of the Academy group did not receive a high level of exposure to career awareness and development activities in school;[21]

---

[20] See summary measure from Table 3.1.

[21] See summary measure from Table 3.2.

- 66 percent of the Academy group did not participate in a work-based learning activity;[22] and

- 78 percent of the Academy group did not have a job with a high overall level of quality.[23]

The purpose of this section is to help explain this pattern. As has been mentioned, Academy students' level of exposure to these experiences is likely to have been affected by the attrition of Academy students from the program prior to the time at which these many career awareness and work-based learning activities are scheduled to occur. While this factor doesn't seem to play a strong role in the variation in outcomes and impacts *across* the sites in the evaluation, it is still quite possible that it plays a strong role in explaining differences in outcomes *within each Academy*. Therefore, in order to arrive at a better understanding of the outcome levels among the Academy students, this section of the chapter analyzes the relationship between attrition from the Academy and exposure to key elements of the Academy experience.

The analysis in this section will focus on five key measures of students' exposure to the Academy program:

- the percentage of students in the Academy group who participated intensively in career and development activities outside of school;

- the percentage of who received a high level of exposure to career awareness and development activities in school;

- the percentage who were employed between the summer after 11th grade and the end of 12th grade;

- the percentage who participated in a work-based learning experience;

- the percentage who had a job with a high level of work-based learning content.

It compares these outcomes across three groups of students:

- students who were randomly selected to be in the Academy group but never enrolled in an Academy;

- Academy group students who enrolled in a Career Academy for at least one semester but left prior to the second semester of their senior year; and

- Academy students who were enrolled in an Academy through the scheduled end of the 12th grade.

Finally, it examines the relationship between students' participation in work-based learning programs and their exposure to high quality work experiences. These analyses help to shed some light on the relationship between retention in the Academy and participation in key aspects of the Academy program as well. Participation in these aspects of the program, however, is likely to be a function of the same characteristics that drive students to stay in the program, and characteristics that favor securing a high quality placement are likely to be related to the likelihood of participating in a work-based learning program at all. Therefore, these data do not provide reliable estimates of the levels of participation we might expect if retention increased, or the level of employment in high quality jobs that we might expect if the level of participation in work-based learning programs increased.

---

[22] See summary measure from Table 3.4.
[23] See summary measure from Table 3.4.

A. The Participation "Funnel"

The exploration of effects of enrollment in and attrition from the Academies begins with Figure 3.1, which illustrates the path from selection into the Academy group to exposure to key elements of the Academy approach, for a typical group of 100 Academy students. As the figure illustrates, of the students who were randomly selected to enroll in an Academy, 87 percent enrolled in a Career Academy for at least one semester during high school. The remaining 13 percent of the students who were selected to enroll were never exposed to the Career Academy program at all. Of the 87 students who enrolled in an Academy, we would expect that 40 percent, or 35 students, would leave prior to the second semester of their senior year. These students would be exposed to some aspects of the Career Academy treatment, but not to the whole program. For example, it seems reasonable to expect that these students might have had an opportunity to gain exposure to some of the career awareness and development activities, but they would be likely to leave the Academy before they were exposed to the work-based learning activities, which occur primarily near the end of high school.

Accounting for this attrition leaves 52 percent of the Academy group (that is, 60 percent of the students who ever enrolled in the Academy) that remained in the Academy through the end of high school. In other words, out of 100 students who were provided with the opportunity to attend an Academy, 52 students would remain through the end of the program. While these students would not necessarily participate in every aspect of the program, they would at least have the *opportunity* to gain exposure to all of the elements of the Academy program, including participation in work-based learning activities. It is perhaps not surprising, then, that according to Figure 3.1, 23 out of every 100 students randomly assigned to the Academy group report participating in work-based learning activities during high school.

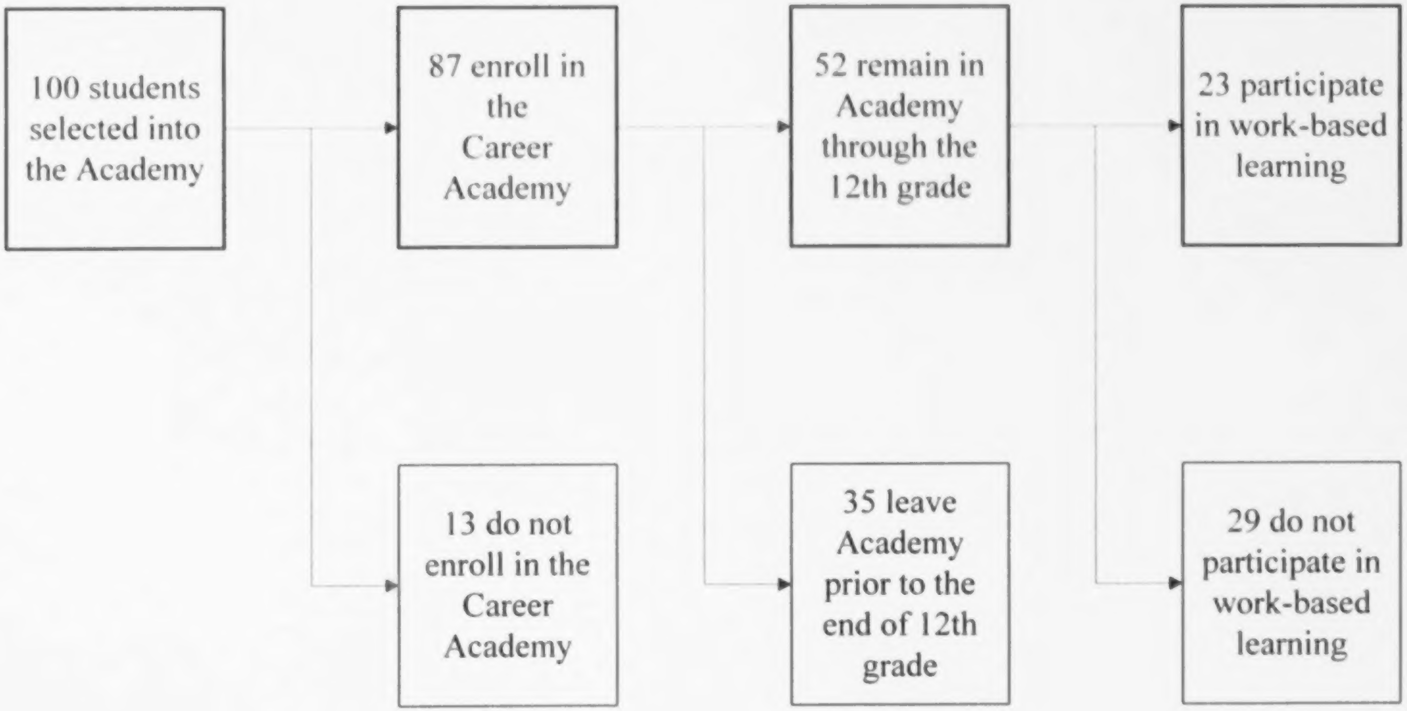
It is important to consider that it is unclear how much of the attrition could theoretically be controlled or avoided by the Academies. Student mobility and dropout are not uncommon problems in most urban high school districts, and they seem to have affected attrition in the Career Academies in this evaluation. In particular, survey data indicate that just under a third of the students who left (about 15 percent of the students randomly assigned to an Academy) left the Academy because they either moved away from the school or left high school altogether. This finding suggests that much of the attrition from the Academies is due more to family relocation patterns than to any particular feature or shortcoming of the Academy.

Moreover, beyond the issues of student mobility and withdrawal from high school, it is not unreasonable to expect that a substantial number of the Academy students who enroll in the 9th or 10th grade will decide that the Academy program is not the best context in which to pursue their education. If students leave the Academy because, for example, they decide that they are simply no longer interested in work-based learning, this attrition need not imply shortcomings in the Academy model or its implementation. On the other hand, the level of attrition that

Figure 3.1

The Career Academies Evaluation

Academy Group Participation Funnel
100 Typical Students


100 students selected into the Academy
87 enroll in the Career Academy
52 remain in Academy through the 12th grade
23 participate in work-based learning
13 do not enroll in the Career Academy
35 leave Academy prior to the end of 12th grade
29 do not participate in work-based learning

we observe does imply that a substantial number of students who were randomly assigned to the Academy group were not enrolled in the Academy at the point when key aspects of the program were scheduled to occur. Therefore, it is important to ascertain the relationship between retention in the Academies and participation in these key program elements and to understand the nature of the experience of those who remained in the Academy through the end of high school. This is the subject of the next section.

B. Participation in Career Awareness and Work-Based Learning Activities and Time Spent in an Academy

The attrition discussed in the previous section implies that the estimated levels of participation in career awareness and work-based learning activities reported earlier in the chapter include a substantial number of students in the Academy group who were not in the Academy at all during the time when they would have experienced these aspects of the program. As was stated earlier, the comparisons between the entire Academy group and students who did not have the opportunity to attend a Career Academy will indeed yield accurate estimates of the program impact — that is, the effect of exposing more students to the opportunity to attend a Career Academy, as opposed to the high school experience which they would otherwise have.

The differences between student participation outcomes among groups of Academy students with various levels of exposure to the Academy are explained in Table 3.6. The table reports average outcomes for five important dimensions of the Academy experience across three mutually exclusive groups of students, controlling for students' background characteristics. The first column reports the levels for students who were randomly selected into the Academy group but never enrolled in a Career Academy. The second column of numbers reports the outcome levels among students who enrolled for at least one semester but who left the Academy prior to the second semester of the 12th grade.[24] The third column reports the outcome levels among students who remained enrolled in a Career Academy through the end of the high school.

Not surprisingly, the numbers in this table indicate the existence of a significant relationship between the time spent in an Academy program and students' participation in the key aspects of the Academy program listed in the table. For example, the first row of Table 3.6 presents the percentages of students who reported having "intense" exposure to the career awareness and development activities that occurred outside of school. The data indicate that 14 percent of the Academy students who never enrolled in the Academy participated intensively in (that is, in two or more aspects of) career awareness and development activities that occurred outside of school. On the other hand, 26 percent of the students who enrolled for at least one semester and 54 percent of those who remained in the program until the end of high school participated intensively in these activities. Moreover, students who remained in the Academy longer appeared to be more likely to have participated in work-based learning experiences and to have been employed in a high quality job. The table also indicates the existence of a significant relationship between time in the Academy and the likelihood of exposure to career awareness and development activities that occurred in school. Interestingly, this relationship seemed to be driven by the difference between the students who remain in the Academy through the 12th grade and the other two

---

[24] The vast majority of these students enrolled in a Career Academy the first semester after they were assigned to the Academy group.

Table 3.6
Career Academies Evaluation

School-Work Connection Measures of Full Academy Group by Career Academy Enrollment Status

Outcome	Never Enrolled in a Career Academy (%)	Enrolled in a Career Academy but left before end of 12th grade (%)	Enrolled in a Career Academy at end of 12th Grade (%)
Participated intensively in career awareness and development activities outside of school	14.3	25.5	53.5 ***
High overall level of exposure to career awareness and development activities in school[a]	45.5	41.7	51.5 **
Ever employed during high school	83.0	79.5	83.3
Ever had work-based learning experience	13.4	26.8	44.7 ***
Ever had job with overall high work-based learning	13.4	18.5	25.8 ***
Sample size (N=868)	112	302	454

SOURCE: MDRC calculations from Career Academies Evaluation 12th Grade Survey.

NOTES: Rounding may cause slight discrepancies in calculating differences.

A chi-squared test was applied to differences among the three Career Academy enrollment groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a] This is a measure of students' ratings of a set of in-school career development and awareness activities from the 12th Grade Survey (see Table 3.2). Students who indicated participating in at least three activities per month are considered to be participating at a high level.

groups of students as a whole. This may suggest that students did not have the opportunity to participate in key aspects of the Career Academy program until the last year of high school.

On the other hand, there appeared to be no significant relationship between time spent in the Academy and the likelihood of being employed during high school. The estimates in the table suggest that both of these experiences are relatively common for a substantial portion of students, regardless of their exposure to the Academy itself. For example, while 83 percent of the students who remained enrolled in the Academy until the end of 12th grade reported being employed at some point during high school, an equal percentage of the students in the Academy group who never enrolled in the Academy reported the same thing.

C. Outcome Levels Among Students Receiving the Full Academy Experience

The third column of Table 3.6 provides a sense of the Academy experience among those who received the "full treatment"; it reports the average outcome levels among students randomly assigned to the Academy who remained in the Academy through the end of the 12th grade, controlling for students' background characteristics. The estimates in this column indicate that 54 percent of those who stayed until the end of the program reported intensive participation in career development and awareness activities that occurred outside of school, and that 52 percent of these students participated in career development and awareness activities that occurred *within* the school. The data in this table also indicate that 83 percent of these students reported being employed at some point during high school, 45 percent of them reported participating in a work-based learning experience, and 26 percent reported having a high quality work-based learning experience during the last year or so of high school.

In general, these outcome levels are higher than those reported in Tables 3.1 through 3.5 for the full Academy group. Nevertheless, they suggest that 47 to 49 percent of the students who remain in the Academy through the entire program do not experience intensive exposure to the career awareness and development activities that are part of the Academy program. They also suggest that between 55 and 74 percent of these students are not exposed to the program of work-based learning which, according to Chapter 2, the Academies are designed to deliver. Another way to phrase this point is to say that somewhere around half the students who remain in the Academy until the end of the program are exposed to career awareness and work-based learning experiences that are the hallmark of the Career Academies. Moreover, it appears that about half the students who participate in work-based learning activities have what might be termed high quality employment or internship experiences while attending the Academy.

In some respects, these results are problematic, because those students who stay in the Academies through the 12th grade are likely to be different from those who leave or who never attend. For example, one might expect them to be more interested in work-based and work-related activities than their counterparts who left, and this might in fact have been the reason that they stayed while their peers did not. This conjecture is consistent with the findings reported earlier in the chapter that suggested the existence of differences in background characteristics across students with different levels of participation in the Academy program. To the extent that these differences exist, it is possible that the students who remain in the Academy until the end of the program are typically somewhat easier to serve than their counterparts who leave the program before the end of high school.

On the other hand, these estimates include statistical controls for students' background characteristics at the time they entered the Academy. Therefore, the numbers that appear in the table reflect only the differences in student outcomes that are not accounted for by students' observable background characteristics. Nevertheless, it is reasonable to suspect that there are differences between those who stay and those who do not, differences that are not observable and therefore not entirely accounted for in the available background data. As a result, the outcome levels among those who remain enrolled in the Academy may still overstate what we might expect to observe if the Academies succeeded in retaining more students in the program. The presentation of these data is useful, however, for at least two reasons. First of all, it provides a description of the actual Academy experience among those who stayed for the entire program. Second, it provides what might be considered an "upper-bound" estimate of the levels of exposure we could expect if more students remained in the program throughout high school. Nevertheless, the results suggest that even among those students who were retained in the program, a substantial portion of students were not exposed to key elements of the Academy experience. This was particularly true for the work-based learning activities, which are among the most distinctive aspects of the Career Academy approach.

The results described in Chapter 2 may help to shed some light on this finding. In particular, the interviews with students and teachers in the Career Academies indicated that both "supply-side" and "demand-side" forces may be at play in the placement of students in internships connected to the Academy. With respect to the "demand-side" effects, some Academies report having difficulty finding enough high quality internship slots in which to place students. As Chapter 2 indicated, employer motivations for placing students in relatively high quality internships rarely include a need to fill immediate personnel gaps but rather reflect either altruistic impulses to help students or a sense that they need to work to improve their labor supply over the long term. As a result, if a given position would yield a particularly worthwhile experience, several Academy students from the same Academy or from different Academies are often competing for it. It is therefore not surprising that finding enough high quality internships in which to place students is a challenge.

In terms of the "supply-side" explanations, the findings in Chapter 2 suggest that at least two factors intervene in the attempt to place students in internship experiences that are connected to school. First of all, some Academy personnel responsible for placing students in these internships report that they are reluctant to send their less well-prepared students out to interview with employers. Partially as a result of the competitive forces described above, Academy personnel are sometimes concerned that the Academy's reputation for providing high quality students might be damaged.

Moreover, the qualitative research that was conducted as part of the evaluation revealed that for many students the eligibility requirements in the Academies represented obstacles to the participation in the internship component of the Academy program. In particular, in addition to other requirements regarding attendance and student conduct, the Academies in the evaluation had a minimum required GPA of 2.0 to 2.5 and a requirement that a student had failed no courses over the previous academic year. To the extent that substantial portions of the Academy students failed to meet these criteria, we would again expect lower overall levels of participation in the work-based learning activities that are such an important part of the Academy experience. If the Academies wish to improve the level of exposure of their students to these experiences, they may have to consider ways to address these intervening factors, such as changing the eligibility requirements or working with students to ensure that they meet them.

Finally, the evidence in Chapter 2 also suggested that the work-based learning activities were competing with other employment opportunities available to the students in the Academy and that students sometimes chose not to participate in work-based learning opportunities so that they could take jobs that paid a higher wage. This finding is consistent with the previous research suggesting that student recruitment, along with parent, teacher, and counselor "buy-in," were more significant barriers to student involvement in work-based learning activities than was the recruitment of employers.[25]

D. Work-Based Learning Activities and High Quality Work Environments

As was mentioned earlier, an important difference between students in the Academy group and those in the non-Academy group is the extent to which their work experiences were connected to their school experiences — that is, the extent to which students appeared to have participated in programs of work-based learning. As was discussed in Chapter 2, the integration of work experiences with school experiences is an important feature of the Academy model. Moreover, the connection to students' work experiences might be one of the primary mechanisms through which the school can affect the quality of the experiences themselves. For example, to the extent that a teacher, counselor, or other adult in the school is involved in helping to create or locate a job opportunity, that person might be better able to draw on the resources of the employer partner to create an internship experience that will be useful and instructive for the student.

Table 3.7 explores this issue by examining the quality of employment experiences of the Academy students and whether or not they were part of a program of work-based learning. The sample for this analysis is limited to students who remained in the Academy through the end of the 12th grade and who were employed at some point between the summer after the 11th grade and the end of their senior year. Among these students, the table compares the level of job quality experienced by students who had jobs that were connected to school as opposed to those who did not.

The differences in this table strongly suggest that work experiences that were part of a program of work-based learning are generally of much higher quality than those that are not. In particular, across each measured dimension of work experience, students whose job experiences were connected to school were much more likely to have high quality work experiences than those whose jobs were not school connected.[26] As the first row of this table indicates, more than half (56 percent) of the students who worked in jobs that were connected to school ever had an experience in a high-skill position, while the same could be said for only 25 percent of the students who did not. Moreover, as the last row of the table indicates, 50 percent of the students who ever had a job that was connected to school had work experiences that could be classified as

---

[25] Hughes, 1998.

[26] It is possible that the types of students who have jobs that are connected to school are more motivated to find high quality work experiences or are different from those who do not in other ways. To the extent that this was the case, these estimates might reflect the differences in the students who seek out these jobs, rather than the differences in the job opportunities, which are a function of their connection to school. These estimates, however, were constructed controlling for student background characteristics such as race, attendance, and academic as well as demographic risk factors. It is therefore difficult to imagine that the differences in these job characteristics are entirely a function of the differences among the students themselves.

Table 3.7
Career Academies Evaluation

School-Work Connection Effects for Those Employed and Enrolled in Academy at End of 12th Grade

Outcome	Part of Work-Based Learning Program (%)	Not Part of Work-Based Learning Program (%)	Difference (%)	Percent Difference (%)
Ever had job with:[a]				
High demand for skills	56.2	25.4	30.8 ***	121.3
High level of advice	42.7	30.2	12.5 ***	41.4
High level of engagement	48.4	23.8	24.6 ***	103.4
Opportunities to learn	56.9	22.6	34.3 ***	151.8
Overall high work-based learning content[b]	50.0	13.8	36.2 ***	262.3
Sample size (N=353)	219	134		

SOURCE: MDRC calculations from Career Academies Evaluation 12th Grade Survey.

NOTES: Rounding may cause slight discrepancies in calculating differences.

A two-tailed t-test was applied to differences between the two work-based learning groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a] The measures of "High demand for skills", "High level of advice", "High level of engagement" and "Opportunities to learn" are based on the average score of a combination of questions regarding activities on the job.

[b] Overall high work-based learning content is based on the average score among students with a high score on the combination of the "High demand for skills", "High level of advice", "High level of engagement" and "Opportunities to learn" measures.

high quality across all four dimensions. The proportion of high quality jobs among students who did not have jobs with such a connection to school was only 14 percent, a difference of more than 250 percent. These results imply that even beyond the effect on the amount of exposure to the world of work in general, participation in planned programs of work experience that are connected to school is strongly related to the *quality* of the work experiences that students have during high school.

These findings also underscore the importance of the results reported earlier in this chapter regarding the extent of involvement in work-based learning activities among Academy students. The results here indicate the existence of a strong relationship between the connection to the Academy and the quality of a job. This finding is consistent with the previous research indicating that the reported level of autonomy, cognitive skill use, and degree of learning among students who are employed in school-supervised jobs significantly exceeds that reported among their counterparts in jobs that are not connected to school.[27] They also indicate that even among students with work experiences that are connected to school, a substantial number do not have high quality experiences. Therefore, in view of the fact that almost two-thirds of the students in the Academy group reported *never* participating in a work-based learning activity, it should not be surprising that 78 percent of these students never work in a job with an overall high level of learning content.

Combined with the results regarding the importance of the school-work connection, this finding suggests that many of the Academy students do not have high quality work experiences because they do not experience an important aspect of the Academy treatment: working in a job that is part of an Academy-sponsored program of work-based learning. To the extent that this is true, Academies hoping to improve students' exposure to high quality work-based learning experiences during high school will benefit from focusing on placing a greater proportion of students in school-sponsored internships. The fact that 50 percent of students who participated in a work-based learning program and who were enrolled in an Academy at the end of 12th grade reported never having had a high quality work-based learning experience suggests that Academies also have a good deal of work to do in improving the quality of the internship experiences in which students are placed.

IV. Conclusions

This chapter examined participation in the central elements of the Academy program among students who had an opportunity to attend a Career Academy (the Academy group) and compared it with the participation of students who did not (the non-Academy group). The comparison suggests that Career Academies have a substantial impact on students' exposure to career development and awareness activities while in high school. In particular, students in the Academy group were significantly more likely than their non-Academy counterparts to have intensive exposure to activities such as job shadowing, mentoring, career-related field trips, and activities that incorporated work and career themes into their high school experiences.

---

[27] Stone, Stern, and McMillion, 1990.

In addition, Career Academies had an impact on students' exposure to work-based learning activities and high quality work experiences during high school. Career Academy students were somewhat more likely than their non-Academy counterparts to be employed while in high school, particularly in the summer prior to 12th grade. Moreover, a substantially higher proportion of Academy students reported working in jobs with high demands for skill, jobs in which they were highly engaged, and jobs that provided them with opportunities to learn new skills, learn about the importance of education, and learn about their career options. This effect of the Academy treatment was concentrated on the employment experiences that occurred during the summer prior to their senior year, rather than those that occurred during the senior year itself. It also appears that while part of this effect is due to the impact of the Academies on the *extent* of employment during this period, this effect is largely driven by differences between the *quality* of the jobs among the Academy students as opposed to their non-Academy counterparts.

Despite the fact that the Academies seemed to have a positive impact on students' participation in career awareness and work-based learning programs, a substantial percentage of students randomly assigned to the Academy group were not exposed to key elements of the Academy program. For example, two-thirds of students in the Academy group were never employed in a job that was part of a work-based learning program, and more than three-quarters of students in the Academy group were never employed in a job that had an overall high level of learning content.

The effect of Career Academies on the level of participation in career awareness and development programs as well as in work-based learning activities was related to the organization of the sites. Sites that either had highly structured employer partnerships or employed a non-teaching person as the liaison to the employers and coordinator of career-related activities had higher levels of participation in and impacts on career awareness and development activities and work-based learning programs. Even among sites with more organized implementation, however, substantial numbers of students did not experience key aspects of the Academy treatment.

Rather than being a function of "across-site" variation in implementation, this pattern seems to be driven by two factors: (1) a substantial number of students who were randomly assigned to the Academy left the Academy before the time when these activities are typically scheduled to occur; and (2) even among those students who remained in the Academy until the end of high school, more than half did not report employment in a job that was part of a work-based learning program.

With respect to student retention, it is notable that among the students randomly assigned to the Academy, only 52 percent remained in the Academy through the 12th grade. A substantial portion of those who left the Academy, however, reported that they either moved out of the area of the host high school or dropped out of high school altogether. It is not clear that there is any reason to believe that this attrition is related to the strength of the Academy model or to the manner in which it was implemented in the sites in this evaluation.

On the other hand, it is true that a substantial portion of the students who left the Academy (slightly more than a third) chose to do so. To the extent that the work experiences at the end of 11th grade and throughout 12th grade are built upon the previous experiences in the Academy, if Academies wish to improve students' exposure to high quality work-based learning experiences, they might focus on improving retention among this group of students. In particular, additional attention might be paid to targeting for enrollment students who are more interested in what the Academy has to offer, or to doing a better job of tailoring the Academy experiences to the needs of their students. Given the fact that Academies are voluntary programs entered in the 9th and 10th grades, however, it is reasonable to expect some attrition among this group as a function of the changes in interests, attitudes, plans, and priorities that naturally occur among young people at this stage of life.

Regardless of what the Academies do about retaining students, the results here suggest that even among the students who remain in the Academy through the end of high school, a substantial portion of the Academy students *are not exposed to central elements of the Academy program*. This may be a function of the students' eligibility for internships or of other factors such as limitations on the number of high quality work-based learning openings or a lack of interest in work-based learning on the part of the Academy students. Nevertheless, an important priority for the Academies should be to improve the extent to which the students who are in the Academy are involved with all aspects of the Academy program.

A key issue along this dimension is the issue of participation in an employment experience that is connected to school. It appears that among students who stay in the programs until the end of high school, differences in the quality of students' work experiences are strongly related to the extent to which these experiences are part of a school-based program of work-based learning. Work experiences that are part of a work-based learning program are of dramatically higher quality than those experiences that are not. It is possible that this pattern could be partially driven by differences in students who seek out or are eligible for jobs that are connected to school. On the other hand, this pattern is also consistent with previous research that suggests that integrating work and school experiences substantially improves the quality of the work experiences students have during high school. As Chapter 2 points out, these programs appear to face structural barriers to increasing students' participation in work-based learning activities. Nevertheless, the evidence presented here suggests that increasing students' involvement in school-sponsored work experiences is a key step in improving the quality of work-based learning they experience during high school.

Appendix A

Comparison of Research Groups and Response Analyses for the Career Academies Evaluation 12th Grade Survey

This appendix describes findings from analyses that were conducted to determine the comparability of students in the program and control groups who completed the Career Academies 12th Grade Survey. It also presents findings from analyses that were conducted to determine the comparability of students who completed the 12th Grade Survey and those who did not.

I. Comparison of Academy and Non-Academy Groups in the 12th Grade Survey Sample

The research sample targeted for the Career Academies Evaluation 12th Grade Survey consists of 1,885 students who were identified in the 10 sites over three school years. This group of students is referred to as the *full study sample.* All of these students were determined by the respective Career Academies to be eligible and appropriate for participation in their programs. Of these, 1,027 students (54 percent) were randomly selected to enroll in the Academies, and the remaining 858 students constitute the study's control group (and were not invited to enroll in the Academies but were able to choose other options in the high school or school district).

In all, 1,585 of the 1,885 students targeted for the 12th Grade Survey completed the questionnaire. This group of students is referred to as the *12th Grade Survey sample* and represents 84 percent of the full study sample. Altogether, 868 (55 percent) of the students in the 12th Grade Survey sample had been randomly assigned to the study's program group. Of these, 87 percent had enrolled in a Career Academy for at least one semester during high school. Because the vast majority of program group students who completed the 12th Grade Survey had some exposure to a Career Academy during high school, the program group is referred to in this report as the *Career Academy Group*.

Of the students in the 12th Grade Survey sample, 717 (45 percent) had been randomly assigned to the study's control group. A small percentage of these students (7 percent) were inadvertently enrolled in a Career Academy at some point during high school. However, because the vast majority of control group students who completed the 12th Grade Survey had their primary high school experiences outside a Career Academy, the control group is referred to in this report as the *non-Academy group.*

A key question underlying the analyses presented in this report is: Did the response pattern for the 12th Grade Survey result in a non-Academy group of students with the same characteristics as the Career Academy group of students? To the extent that these two groups were similar at the time they entered the study, differences in their later experiences and behaviors, as measured by the 12th Grade Survey, can be attributed more confidently to effects of the Career Academy programs. On the other hand, if there are systematic differences in the background characteristics of each group, then contrasts between them based on 12th Grade Survey measures may reflect these initial differences rather than effects of the Career Academies.

In order to explore the existence of such differences, Table A.1 presents the background characteristics of the Academy and non-Academy groups in the 12th Grade Survey sample at the time they applied to an Academy (just before they were randomly selected for these groups). The table indicates only slight differences in a few particular characteristics and suggests that there were no systematic differences between the groups across characteristics. In particular, a statistical test of whether or not the distribution of each set of background characteristics was different across the

Academy and non-Academy groups is significant for only one characteristic, the percentage of students whose spoken English was limited. Moreover, this difference is small. Another rigorous way to determine whether there were any systematic differences between the Career Academy and non-Academy groups is to use linear regression. These linear regression estimates (not presented) also suggest the existence of no systematic differences between the Academy and non-Academy students. In fact, the p-value of the F-statistic from this regression[1] indicates that there is a 73 percent probability that the overall measured characteristics were the same for students in the Career Academy and non-Academy groups. This means that the 12th Grade Survey sampling strategy and completion rates produced Academy and non-Academy groups of students with no systematic differences in their background characteristics.

Given the overall lack of difference in background characteristics between the two groups, one can be confident that differences in the 12th Grade Survey measures were caused by one group's having had access to the Career Academies and the other group's not having had such access. In any discussion of such comparisons, however, the results should be interpreted cautiously because there may have been unmeasured differences between the Career Academy group and the non-Academy group that were not taken into account with the measured background characteristics.

II. Generalizing 12th Grade Survey Findings to the Full Study Sample: Response Analysis for the 12th Grade Survey Sample

This section addresses another important question for interpreting the findings from the analyses presented in this report: Are students who completed the 12th Grade Survey representative of the full study sample? This question is important because its answer indicates the extent to which findings from the 1,585 students who completed the 12th Grade Survey can be generalized to the 1,885 students in the full study sample. In other words, average responses to 12th Grade Survey items may be different from what they would have been if we succeeded in surveying all students in the research sample.

In order to address this question, linear regression estimates (not shown) were produced to determine the extent to which average characteristics of the 1,585 students who completed the 12th Grade Survey differed from average characteristics of the 300 students who did not complete the 12th Grade Survey. The p-value of the F-statistic[2] indicates that there is strong evidence that there were systematic differences in the background characteristics of those who completed the 12th Grade Survey and those who did not. For example, those who completed the 12th Grade Survey were significantly less likely to be male, to be classified as having limited English proficiency, to live in a single-parent household, and to have background characteristics associated with an increased risk of dropping out of school.

In short, this analysis indicates that the sample of 1,585 students who completed the 12th Grade Survey is not completely representative of the full sample of 1,858 students as a whole. Thus, caution should be exercised when attempting to generalize findings from the 12th Grade Survey analysis to the full research sample. However, since students who completed the 12th Grade Survey make up the vast majority of the full study sample, the findings are representative of a broad group of the students in the sample.

---

[1] F (1584, 128)= 0.92, p-value = 0.73.

[2] F (1884, 129) = 2.08, p-value = 0.0001.

Table A.1

Career Academies Evaluation

Background Characteristics of Students in the 12th Grade Survey Sample, by Academy and Non-Academy Groups

Characteristic	Academy Group (%)	Non-Academy Group (%)	Total (%)
Demographic characteristics			
Gender			
Male	43.8	41.4	42.7
Female	56.2	58.6	57.3
Race/ethnicity			
Black	30.5	28.1	29.4
White	8.3	10.4	9.3
Hispanic	53.7	54.6	54.1
Asian or Native American	7.5	7.0	7.3
Age of student at time of application			
13 or younger	7.3	9.8	8.4
14	35.1	34.7	34.9
15	48.3	46.3	47.4
16 or older	9.3	9.2	9.3
Grade level at time of application			
Eighth grade	21.2	21.1	21.1
Ninth grade	78.8	78.9	78.9
Year of scheduled high school graduation			
Spring 1996	25.1	24.0	24.6
Spring 1997	37.6	37.2	37.4
Spring 1998	37.3	38.8	38.0
High school			
Lake Clifton/Eastern High School	13.8	13.8	13.8
Socorro High School	11.8	11.6	11.7
Miami Beach Senior High School	13.9	14.2	14.1
Independence High School	6.6	6.4	6.5
Silver Creek High School	8.9	8.4	8.6
Valley High School	16.0	15.8	15.9
Watsonville High School	15.4	16.5	15.9
Anacostia High School	5.8	5.3	5.6
Cocoa High School	4.7	4.7	4.7
George Westinghouse High School	3.1	3.4	3.2
Family characteristics			
Family composition			
Lives with mother and father	62.6	63.2	62.9
Lives with mother only	27.4	27.9	27.6
Lives with father only	5.2	3.7	4.5
Lives with other family member(s) or nonrelative(s)	4.8	5.2	5.0

(continued)

Table A.1 (continued)

Characteristic	Academy Group (%)	Non-Academy Group (%)	Total (%)
Father's education			
Did not finish high school	38.7	39.7	39.1
GED recipient[a]	7.7	5.1	6.5
High school graduate	24.3	27.0	25.5
Some post-secondary education	15.7	17.6	16.5
College graduate	13.7	10.7	12.4
Mother's education			
Did not finish high school	35.5	37.2	36.2
GED recipient[a]	8.0	10.1	9.0
High school graduate	26.3	25.0	25.7
Some post-secondary education	19.6	17.3	18.6
College graduate	10.6	10.5	10.5
Parental employment for pay			
Both work	47.0	51.4	49.0
Father works	23.9	23.4	23.7
Mother works	19.0	14.5	17.0
Neither works	10.1	10.7	10.4
Family mobility in last two years			
Never moved	59.5	60.3	59.9
Moved once or twice	33.7	32.9	33.3
Moved three or more times	6.8	6.8	6.8
Educational Characteristics			
8th grade math test score			
75th percentile or higher	9.3	9.0	9.1
51st to 75th percentile	21.5	19.2	20.5
26th to 50th percentile	29.1	34.6	31.5
25th percentile or lower	40.2	37.3	38.9
8th grade reading test score			
75th percentile or higher	11.5	10.4	11.0
51st to 75th percentile	20.7	17.5	19.3
26th to 50th percentile	33.9	36.6	35.1
25th percentile or lower	33.9	35.6	34.6
Attendance rate, year prior to random assignment			
95-100%	57.2	58.7	57.9
90-94%	22.3	23.9	23.1
85-89%	11.2	8.0	9.8
Less than 85%	9.3	9.3	9.3
English grades since the 6th grade			
Mostly As and Bs	63.9	62.7	63.3
Mostly Cs	35.2	36.5	35.8
Mostly Ds or below	0.9	0.9	0.9
Math grades since the 6th grade			
Mostly As and Bs	54.7	54.7	54.7
Mostly Cs	43.6	43.5	43.5
Mostly Ds or below	1.8	1.9	1.8

(continued)

Table A.1 (continued)

Characteristic	Academy Group (%)	Non-Academy Group (%)	Total (%)
Time spent on homework per week			
1 hour or less	28.2	30.1	29.1
2 to 6 hours	57.1	52.9	55.2
7 or more hours	14.7	16.9	15.7
Students' future expectations			
Plans to graduate from high school	6.9	6.5	6.7
Plans to attend vocational/trade school or college	27.4	27.9	27.6
Plans to graduate from college	40.4	38.2	39.4
Plans to attend a higher level of school after college	25.3	27.1	26.1
Students over-age for grade[b]	21.3	21.5	21.4
Students' school engagement and participation[c]			
Attendance			
Never absent	23.1	23.4	23.2
Absent 1 or 2 times	35.2	36.1	35.6
Absent 3 to 10 times	35.3	34.1	34.7
Absent more than 10 times	6.4	6.5	6.4
Late for school			
Never	29.1	25.5	27.5
1 or 2 times	35.2	38.5	36.7
3 to 10 times	28.3	28.3	28.3
More than 10 times	7.4	7.8	7.6
Cuts class			
Never or almost never	80.6	78.8	79.8
Once a week or more	19.4	21.3	20.2
Warned about school behavior			
Never	78.8	77.8	78.4
1 or 2 times	17.7	19.3	18.5
3 or more times	3.5	2.9	3.2
Sent to office for behavioral problems			
Never	80.8	81.7	81.2
1 or 2 times	16.2	15.6	15.9
3 or more times	3.1	2.7	2.9
School mobility[d]			
1 or less	72.5	72.3	72.4
2 to 4	23.4	24.7	24.0
5 or more	4.1	3.0	3.6
Students' perceptions of school[e]			
Teachers are interested in students	82.0	83.5	82.7
Discipline is unfair	15.1	16.4	15.7
Students feel put down by teachers	16.7	18.9	17.7
School is unsafe	22.6	22.3	22.5

(continued)

Table A.1 (continued)

Characteristic	Academy Group (%)	Non-Academy Group (%)	Total (%)
Characteristics associated with risk of educational failure[f]			
Single-parent household[g]	37.4	36.8	37.1
Has sibling who dropped out of high school	19.1	20.3	19.6
Neither parent has a high school diploma	28.2	27.9	28.1
Family receiving welfare or Food Stamps	22.8	22.8	22.8
Home alone more than 3 hours per day	13.9	13.3	13.6
Student speaks limited English[h]	6.2	8.7	7.3 *
Students with 2 or more risk characteristics	33.9	35.4	34.6
Sample size	868	717	1585

SOURCE: MDRC calculations from the Career Academies Student Baseline Questionnaire (SBQ).

NOTES: The SBQ was completed at the time students applied to a Career Academy. For 1,250 students, this corresponded to the spring semester of ninth grade, and for 335 students it corresponded to the spring semester of eighth grade.

For categorical variables, percentages may not sum to 100 because of rounding.

A chi-square or t-test was used to test differences between Career Academy and non-Academy groups. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; *** = 1 percent. For categorical variables (e.g., race/ethnicity), the significance level refers to the difference in the distribution of such a variable across Career Academy and non-Academy students.

[a] GED refers to the certificate earned through a General Educational Development program.

[b] Students are defined as over-age for grade at the time of random assignment if they turn 15 before the start of the ninth grade (for the ninth-grade Academies) or 16 before the start of the tenth grade (for the tenth-grade Academies).

[c] Unless otherwise indicated, measures of student engagement and participation in school were asked in reference to the first half of the current school year.

[d] School mobility is defined as the number of schools attended since the first grade beyond the number expected based on promotions in grade level or graduations.

[e] For most students who completed the SBQ in ninth grade, the school of reference is the high school in which the Career Academy is located. For students who completed the SBQ in eighth grade, the school of reference is their middle school.

[f] Students in the Career Academies Evaluation sample with a minimum of three valid values on the six indicators of risk are included in the calculations.

Educational failure is defined as failing to achieve in school or dropping out of school. The National Center for Education Statistics (1990) used six characteristics to define risk: living in a single-parent household, living in a low-income household, student speaks limited English, home alone at least three hours per day, has a sibling who dropped out of high school, and neither parent has a high school diploma. Students with two or more risk characteristics are considered to be at risk of educational failure.

[g] The risk characteristic "single-parent household" is defined as living with only the father or only the mother, or living with other individuals (such as grandparents).

[h] Students who responded that they spoke English "not well" or "not at all."

Appendix B

Supplementary Tables to Chapter 3

Table B.1
Career Academies Evaluation

Background Characteristics of Program Students by Duration of Enrollment in a Career Academy

Characteristic	Never Enrolled in a Career Academy (%)	Enrolled in a Career Academy but Left Before End of 12th Grade (%)	Still Enrolled in a Career Academy in 12th Grade (%)	
Percentage of entire Academy group	12.9	34.8	52.3	
Demographic characteristics				
Gender				
Male	44.6	47.7	41.0	
Female	55.4	52.3	59.0	
Race/ethnicity				
Black	52.7	28.0	26.7	***
White	6.4	9.8	7.9	
Hispanic	33.6	54.9	57.9	
Asian or Native American	7.3	7.4	7.6	
Educational characteristics				
8th grade math test score				
75th percentile or higher	20.7	7.4	7.5	**
51st to 75th percentile	18.3	23.7	21.0	
26th to 50th percentile	28.1	27.4	30.3	
25th percentile or lower	32.9	41.6	41.1	
8th grade reading test score				
75th percentile or higher	19.5	12.6	9.0	**
51st to 75th percentile	26.8	17.3	21.2	
26th to 50th percentile	31.7	33.5	34.6	
25th percentile or lower	22.0	36.7	35.2	
Attendance rate, year prior to random assignment				
95-100%	47.8	51.0	63.6	***
90-94%	24.3	22.2	22.0	
85-89%	12.6	12.8	9.8	
Less than 85%	15.3	14.1	4.7	
Characteristics associated with risk of educational failure				
Single-parent household	54.1	39.9	31.7	***
Has sibling who dropped out of high school	21.8	20.8	17.2	
Neither parent has a high school diploma	18.6	25.2	32.8	***
Family receiving welfare or Food Stamps	26.8	26.1	19.5	*
Home alone more than 3 hours per day	15.0	12.8	14.3	
Student speaks limited English	1.8	5.7	7.6	*
Students with 2 or more background risk characteristics	38.7	37.9	30.1	
Students with 3 or more academic risk characteristics	32.1	35.1	25.8	**
Sample size (N=868)	112	302	454	

(continued)

Table B.1 (continued)

SOURCE: MDRC calculations from Career Academies Student Baseline Questionnaire (SBQ).

NOTES: Rounding may cause slight discrepancies in calculating differences.

A chi-squared test was applied to differences among the three Career Academy enrollment groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent. For categorical variables (for example, race/ethnicity), the significance level refers to the difference in the distribution of such a variable across the three Career Academy enrollment groups.

Table B.2

Career Academies Evaluation

Items from the 12th Grade Survey and Student School Experience Questionnaire Used to Create Career Awareness and Work-Based Learning Participation Measures

---

Career Awareness and Development Activities Outside of School

SQ27. During the current school year, HOW OFTEN have you (Scale: 1= "Never"; 2= "Once or Twice"; 3= "3-6 times"; 4= "About Once a Month"; 5= "Several Times a Month or More")

a. Taken a school field trip to learn about a business or industry?

OQ35. Since you started the 9th grade, have you ever participated in any of the following programs through your high school? (Scale: 1= "Yes"; 2= "No")

a. A program where you spend time following workers at a work site (this is something called Job shadowing)

OQ36. Since you started the 9th grade, have you ever been in a program (either in school or outside of school) where you were paired with an adult mentor or someone who took a special interest in you? This means someone other than a parent or relative. (Scale: 1= "Yes"; 2= "No")

OQ36C. How important was this person: (Scale: 1= "Very Important"; 2= "Sort of Important"; 3= "Not Very Important"; 4 = "Not At All Important")

i. As a friend?
ii. As a role model?
iii. As someone who helped you make an important decision about your education or career?
iv. As someone who made contacts for you to meet your educational or career goals?
v. As someone who helped you with a personal problem?

Career Awareness and Development Activities Inside of School

OQ37. During the current school year, HOW OFTEN have you (Scale: 1= "Never"; 2= "Once or Twice a Month"; 3= "About Once a Month"; 4= "Several Times a Month or More")

a. Studied about different kinds of jobs and their requirements in a class?
b. Had discussions with other students about careers and work?
c. Gotten instruction or counseling on how to act on the job?
d. Had discussions with adults about careers and work?
e. Attended an activity when parents or other adults came to school to talk about jobs?
f. Gotten instruction or counseling on how to find a job?

(continued)

Table B.2 (continued)

Participation in Work-Based Learning Experiences

OQ45. This job is/was part of a school program or class
(Scale: 1= "Yes"; 2= "No")

OQ46. I get/got course credit for the work I do/did at this job
(Scale: 1= "Yes"; 2= "No")

OQ47. A teacher, counselor, or other adult from school helped me find this job
(Scale: 1= "Yes"; 2= "No")

OQ48. A teacher, counselor, or other adult from school check/checked with my work supervisor about how I am/was doing
(Scale: 1= "Yes"; 2= "No")

OQ49. My supervisor at work keeps/kept my teacher or a counselor at school informed about how I am/was doing
(Scale: 1= "Yes"; 2= "No")

Participation in High Quality Work-Based Learning Experiences

OQ51. Thinking about your job, how true is each statement below?
(Scale: 1= "Very True"; 2= "Sort of True"; 3= "Not Very True"; 4= "Not At All True")

a. I do/did more than the minimum required
b. I feel/felt bored and that time is/was dragging
c. I feel/felt my work is/was meaningful and important
d. I got/get a chance to learn a lot of new things
e. My job (has) taught me the importance of getting a good education
f. My job (has) influenced my career choice

OQ52. How often do/did you do the following things on this job? (Scale: 1= "Never"; 2= "Rarely"; 3= "Sometimes"; 4= "Often"; 5= "Almost Always")

a. Read things (such as job manuals, instructions, reports, etc.)
c. Write things (such as letters, reports, forms, papers, etc.)
d. Use computers (such as word processing, spreadsheets, data entry, programming, etc.)
g. Receive advice on how to use communication skills (such as reading, writing, or speaking)?
i. Receive advice on how to develop good work habits
j. Receive advice on how to develop good human relationship skills

---

SOURCES: Career Academies Evaluation 12th Grade Survey and Career Academies Evaluation Student School Experience Questionnaire.

NOTES: The item indicated by "SQ" is a question from the Student School Experience Questionnaire. Items indicated by "OQ" are questions from the 12th Grade Survey. The number and letter before each item indicates its location in the surveys, which are available from MDRC.

Table B.3
Career Academies Evaluation

Impacts on
Participation in School-to-Work Programs

Outcome	Academy Group (%)	Non-Academy Group (%)	Difference (%)	Percent Difference (%)
Ever participated in:				
Cooperative education program	44.5	29.8	14.7 ***	49.4
School-sponsored business program	36.7	25.1	11.6 ***	46.1
Technical preparation program	38.5	28.8	9.7 ***	33.7
Career major program	40.0	29.7	10.3 ***	34.9
Career Academy program	90.9	26.6	64.3 ***	241.7
Other programs that link school with jobs	28.0	24.7	3.3	13.4
Any participation in a school-to-work program	96.2	70.0	26.2 ***	37.4
Sample Size (N=1585)	868	717		

SOURCE: MDRC calculations from Career Academies Evaluation 12th Grade Survey.

NOTES: Rounding may cause slight discrepancies in calculating differences.

A two-tailed t-test was applied to differences between the Career Academy and non-Academy groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

Table B.4
Career Academies Evaluation

School-Work Connection Measures
of Control Group
by Participation in School-to-Work Programs

Outcome	Participated in School-to-Work Program (%)	Never Participated in School-to-Work Program (%)	Difference (%)	Percent Difference (%)
Participated intensively in career awareness and development activities outside of school	20.5	4.2	16.3 ***	388.1
Overall high level of exposure to career awareness and development activities in school[a]	48.7	19.4	29.3 ***	151.0
Ever employed during high school	81.6	71.4	10.2 ***	14.3
Ever had work-based learning experience	32.2	12.3	19.9 ***	161.8
Ever had job with overall high work-based learning content	18.4	13.3	5.1 *	38.3
Sample Size (N=717)	501	216		

SOURCE: MDRC calculations from Career Academies Evaluation 12th Grade Survey.

NOTES: Rounding may cause slight discrepancies in calculating differences.

A two-tailed t-test was applied to differences between the Career Academy and non-Academy groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a] This is a measure of students' ratings of certain in-school career development and awareness activities from the 12th Grade Survey (see Table 3.2). Students who indicated participating in at least three activities per month are considered to be participating at a high level.

References

Bailey, Thomas R., and Donna Merritt. 1997. *School to Work for the College Bound* (MDS-799). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Committee for Economic Development. 1998. *The Employer's Role in Linking School and Work*. New York: Author.

Grubb, W. Norton, and Marvin Lazerson. 1975. "Rally 'Round the Workplace: Continuities and Fallacies in Career Education." *Harvard Educational Review* 45(4): 451–474.

Grubb, W. Norton, ed. 1995. *Education Through Occupations in American High Schools, Volume 1: Approaches to Integrating Academic and Vocational Education*. New York: Teachers College Press.

Grubb, W. Norton. 1996. "Learning to Work: The Case for Reintegrating Education and Job Training." New York: Russell Sage Foundation.

Hershey, Alan M, Paula Hudis, Marsha Silverberg, and Joshua Haimson. 1997.*Partners in Progress: Early Steps in Creating School-to-Work Systems*. Princeton, NJ: Mathematica Policy Research, Inc.

Hughes, Katherine L. 1998. *Employer Recruitment Is Not the Problem: A Study of School to Work Transition Programs*. Institute on Education and the Economy Working Paper no. 5 (June).

Kemple, James, and JoAnn Leah Rock. 1996. *Career Academies: Early Implementation Lessons from a 10-Site Evaluation*. New York: Manpower Demonstration Research Corporation.

Kemple, James J. 1997a. *Career Academies: Communities of Support for Students and Teachers: Emerging Findings from a 10-Site Evaluation*. New York: Manpower Demonstration Research Corporation.

Kemple, James J. 1997b. "Selected Dimensions of Applied Learning in Career Academy Classrooms." Unpublished paper. New York: Manpower Demonstration Research Corporation.

Lazerson, Marvin, and W. Norton Grubb. 1974. *American Education and Vocationalism: A Documentary History, 1870–1970*. New York: Teachers College Press.

Murnane, Richard, and Frank Levy. 1996. *Teaching the New Basic Skills: Principles for Educating Children to Thrive in a Changing Economy*. New York: The Free Press.

National Center on Education and the Economy's Commission on the Skills of the American Workforce. 1990. *America's Choice: High Skills or Low Wages!* Rochester, NY: National Center on Education and the Economy.

Office of Technology Assessment (OTA), U.S. Congress. 1995. *Learning to Work: Making the Transition from School to Work* (OTA-EHR-637). Washington, DC: U.S. Government Printing Office.

Pauly, Edward, Hilary Kopp, and Joshua Haimson. 1994. *Home-Grown Lessons: Innovative Programs Linking School and Work*. San Francisco: Jossey-Bass.

Pedraza, Rachel A., Edward Pauly, and Hilary Kopp. 1997. *Home-Grown Progress: The Evolution of Innovative School-to-Work Programs*. New York: Manpower Demonstration Research Corporation.

Raizen, Senta. 1989. *Reforming Education for Work: A Cognitive Science Perspective*. Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

Resnick, Lauren. 1987. *Education and Learning to Think*. Washington, DC: National Academy Press.

Secretary's Commission on Achieving Necessary Skills (SCANS). 1991. *What Work Requires of Schools*. Washington, DC. U.S. Department of Labor.

Steinberg, Adria. 1998. *Real Learning, Real Work: School-to-Work as a High School Reform*. New York: Routledge Press.

Stern, David, Charles Dayton, and Marilyn Raby. 1998. *Career Academies and High School Reform*. Berkeley: Career Academy Support Network, University of California at Berkeley.

Stone, James III, David Stern, and Martin McMillion. 1990. "Adolescents' Perceptions of Their Work: School Supervised and Non-School Supervised." *Journal of Vocational Education Research*, 15(2):31–53.

Urquiola, M., D. Stern, H. Horn, C. Dornsife, B. Chi, L. Williams, D. Merritt, K. Hughes, and T. Bailey. 1997. *School to Work, College and Career* (MDS-1144). Berkeley: National Center for Research in Vocational Education, University of California at Berkeley.

William T. Grant Foundation. 1988. *The Forgotten Half: Pathways to Success for America's Youth and Young Families*. Washington, DC: William T. Grant Foundation, Commission on Work, Family and Citizenship .

Selected Publications on MDRC Projects

Education Reform

The Career Academies Evaluation

A 10-site study of a promising approach to high school restructuring and the school-to-work transition.

Career Academies: Early Implementation Lessons from a 10-Site Evaluation. 1996. James Kemple, JoAnn Leah Rock.

Career Academies: Communities of Support for Students and Teachers—Emerging Findings from a 10-Site Evaluation. 1997. James Kemple.

The School-to-Work Project

A study of innovative programs that help students make the transition from school to work or college.

The School-to-Work Transition and Youth Apprenticeship: Lessons from the U.S. Experience. 1993. Thomas Bailey, Donna Merritt.

Home-Grown Lessons: Innovative Programs Linking School and Work (Jossey-Bass Publishers). Book. 1995. Edward Pauly, Hilary Kopp, Joshua Haimson. Revised version of a 1994 MDRC report.

Learning Through Work: Designing and Implementing Quality Worksite Learning for High School Students. 1994. Susan Goldberger, Richard Kazis, Mary Kathleen O'Flanagan (all of Jobs for the Future).

Home-Grown Progress: The Evolution of Innovative School-to-Work Programs. 1997. Rachel Pedraza, Edward Pauly, Hilary Kopp.

Project Transition

A demonstration program that tested a combination of school-based strategies to facilitate students' transition from middle school to high school.

Project Transition: Testing an Intervention to Help High School Freshmen Succeed. 1999. Janet Quint, Cynthia Miller, Jennifer Pastor, Rachel Cytron.

Other Programs for Youth

The JOBSTART Demonstration

A test of a program combining education, training, support services, and job placement for very disadvantaged young high school dropouts.

JOBSTART: Final Report on a Program for School Dropouts. 1993. George Cave, Hans Bos, Fred Doolittle, Cyril Toussaint.

The Career Beginnings Evaluation

An evaluation of a program that seeks to increase college attendance and improve job quality among disadvantaged high school students.

Career Beginnings Impact Evaluation: Findings from a Program for Disadvantaged High School Students. 1990. George Cave, Janet Quint.

The Youth Incentive Entitlement Pilot Projects (YIEPP) Demonstration

A test of a school-conditioned job guarantee for low-income youth.

Lessons from a Job Guarantee: The Youth Incentive Entitlement Pilot Projects. Monograph. 1984. Judith Gueron.

Note: For works not published by MDRC, the publisher's name is shown in parentheses.

Programs for Teenage Parents on Welfare

The LEAP Evaluation

An evaluation of Ohio's Learning, Earning, and Parenting (LEAP) Program, which uses financial incentives to encourage teenage parents on welfare to stay in or return to school.

LEAP: Final Report on Ohio's Welfare Initiative to Improve School Attendance Among Teenage Parents. 1997. Johannes Bos, Veronica Fellerath.

The New Chance Demonstration

A test of a comprehensive program of services that seeks to improve the economic status and general well-being of a group of highly disadvantaged young women and their children.

Lives of Promise, Lives of Pain: Young Mothers After New Chance. Monograph. 1994. Janet Quint, Judith Musick, with Joyce Ladner.

New Chance: Final Report on a Comprehensive Program for Young Mothers in Poverty and Their Children. 1997. Janet Quint, Johannes Bos, Denise Polit.

Parenting Behavior in a Sample of Young Single Mothers in Poverty: Results of the New Chance Observational Study. 1997. Martha Zaslow, Carolyn Eldred, editors.

Project Redirection

A test of a comprehensive program of services for pregnant and parenting teenagers.

The Challenge of Serving Teenage Mothers: Lessons from Project Redirection. Monograph. 1988. Denise Polit, Janet Quint, James Riccio.

The Community Service Projects

A test of a New York State teenage pregnancy prevention and services initiative.

The Community Service Projects: Final Report on a New York State Adolescent Pregnancy Prevention and Services Program. 1988. Cynthia Guy, Lawrence Bailis, David Palasits, Kay Sherwood.

About MDRC

The Manpower Demonstration Research Corporation (MDRC) is a nonprofit, nonpartisan social policy research organization. We are dedicated to learning what works to improve the well-being of low-income people. Through our research and the active communication of our findings, we seek to enhance the effectiveness of social policies and programs. MDRC was founded in 1974 and is located in New York City and San Francisco.

MDRC's current projects focus on welfare and economic security, education, and employment and community initiatives. Complementing our evaluations of a wide range of welfare reforms are new studies of supports for the working poor and emerging analyses of how programs affect children's development and their families' well-being. In the field of education, we are testing reforms aimed at improving the performance of public schools, especially in urban areas. Finally, our community projects are using innovative approaches to increase employment in low-income neighborhoods.

Our projects are a mix of demonstrations – field tests of promising program models – and evaluations of government and community initiatives, and we employ a wide range of methods such as large-scale studies to determine a program's effects, surveys, case studies, and ethnographies of individuals and families. We share the findings and lessons from our work – including best practices for program operators – with a broad audience within the policy and practitioner community, as well as the general public and the media.

Over the past quarter century, MDRC has worked in almost every state, all of the nation's largest cities, and Canada. We conduct our projects in partnership with state and local governments, the federal government, public school systems, community organizations, and numerous private philanthropies.

MDRC

16 East 34 Street
New York, New York 10016
(212) 532-3200
www.mdrc.org

88 Kearny Street, Suite 1800
San Francisco, California 94108
(415) 781-3800